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SULFATHIAZOLE IN THE TREATMENT OF SEVERE STAPHYLOCOCCUS INFECTION

WALTER B. MARTIN, M. D.

and

R. BRYAN GRINNAN, JR., M. D.

NORFOLK, VA.

We have elsewhere reported our results in the treatment of severe staphylococcus infection with sulfapyridine and its sodium salt[1]. During the past year we have had the opportunity to observe the effect of sulfathiazole on 6 cases of severe infection with the same organism. Our results with sulfapyridine were most satisfactory. Sulfathiazole, however, possesses certain distinct advantages over the pyridine compound from the standpoint of toxicity. It would seem, therefore, to be the drug of choice in the treatment of such cases if proved by clinical trials to be as effective against staphylococcus infection as is sulfapyridine.

Sulfathiazole, first synthesized by Fosbinder and Walters[2], differs in its chemical structure from sulfapyridine in that a thiazole group is substituted for the pyridine ring. This drug is more readily absorbed from the intestinal tract than sulfapyridine, and more rapidly excreted.

Long[3] states that, in addition to its more rapid absorption and excretion, less of the drug is found conjugated in the blood and urine, and its distribution in body fluids and exudates is similar to that of sulfanilamide. In these respects it differs quite markedly from sulfapyridine. It is generally agreed that it is less toxic than sulfapyridine, with the single exception of a higher incidence of dermatitis. Moreover, because of its rapid excretion, toxic symptoms when they do occur are more readily controllable.

Flippin, Schwartz, and Rose[4], in reviewing their findings on 200 pneumonia cases, half of which were treated with sulfapyridine and half with sulfathiazole, found nausea more than three times as frequent and vomiting two and a half times as frequent in the sulfapyridine group as in the sulfathiazole treated cases. Hematuria, drug fever, and drug psychosis were also less common in the latter group, but dermatitis was more common. The therapeutic results were approximately the same with the two drugs, with a slight differential in favor of sulfathiazole.

Carey[5] has found sulfathiazole as effective as sulfapyridine in upper respiratory infection, bronchitis, and pneumococcic pneumonia. In his experience it was more effective against staphylococcus infections. Only in meningitis was sulfathiazole found less useful, owing to the fact that less satisfactory concentration can be obtained in the spinal fluid as compared to blood concentration.

Read before the Seaboard Medical Association, Washington, N. C., December 4, 1940.
Drug furnished through the courtesy of Merck and Company, Inc.

1. Martin, W. B., and Grinnan, R. Bryan, Jr.: The Treatment of Severe Staphylococcus Infections with Sulfapyridine and Its Sodium Salt, South. M. J. 33:1039 (October) 1940.
2. Fosbinder, R. J., and Walters, L. A.: Sulfanilamide Derivatives of Heterocyclic Amines, J. Am. Chem. Soc. 61: 2032 (August) 1939.
3. Long, Perrin H.: Thiazole Derivatives of Sulfanilamide, J.A.M.A. 114:870 (March 9) 1940.
4. Flippin, Harrison F.; Schwartz, Leon; and Rose, S. Brant: Comparative Effectiveness and Toxicity of Sulfathiazole and Sulfapyridine in Pneumococcic Pneumonia, Ann. Int. Med. 13:2038 (May) 1940.
5. Carey, Benjamin W.: Use of Sulfanilamide and Related Compounds in Diseases of Infancy and Childhood, J.A.M.A. 115:924 (September 14) 1940.

Spink and Hansen[6] report from their experience 15 consecutive cases of staphylococcus septicemia successfully treated with sulfathiazole.

Poole and Cook[7] have pointed out the value of sulfathiazole and sulfamethylthiazole in the treatment of staphylococcus infection of the urinary tract.

Our own experience with sulfathiazole from the standpoint of therapeutic results closely parallels that previously reported with sulfapyridine. Most impressive are those cases of severe, rapidly advancing general sepsis, which have responded to treatment.

Case Reports

Case 1. L. C., a male child, aged 2, was admitted to Norfolk General Hospital on June 28, 1940. On June 25 the patient had been seen at home by his family physician, and a small pustule was noted on the back of the head. On the next day this lesion was slightly larger, and wet dressings were applied. It was noted at that time that the child had a slight fever. On June 27 the area was considerably enlarged and there was beginning edema of the surrounding area of the scalp. On admission to the hospital the infected area was incised and drained. When seen by us on June 29, the child appeared desperately ill and toxic. The temperature was 105.4 F.; pulse, 130. The principal finding was an extensive area of cellulitis and edema beginning at the hair line in the back and extending forward to the frontal region. The veins of the scalp were thrombic and cord-like and studded with pustules. There was no cervical rigidity. Kernig's sign was negative. The lungs were clear and the heart was normal. The leukocyte count was 11,100, with 83 per cent granulocytes. The erythrocytes were 3,870,000 and the hemoglobin 68 per cent. A blood culture taken the previous day showed many colonies of Staphylococcus aureus on the plate. A culture from the wound also showed the same organism. The patient, weighing 29 pounds, was immediately placed on sulfathiazole, ½ tablet (3¾ grains) every three hours. This was later increased to ½ tablet every two hours for one day, and then returned to the former dosage. This represents a maximal dosage of 1.6 grains per pound and a minimal dosage of 1 grain per pound. The highest concentration reached in the blood was 4.6 mg. per 100 cc. on July 2. On July 2 the patient was given 150 cc. of citrated blood. The blood culture was still heavily positive on June 30, and on July 2 there were still a few colonies on the plate. Thereafter, the blood cultures were negative. The clinical condition of the patient rapidly improved, and on July 8 the temperature range was from 100 to 101°. The following day the temperature rose sharply to 104.2°. It was felt that this temperature rise was probably the result of drug intoxication. With the withdrawal of the drug there was a prompt fall in temperature, and from then on the patient made an uneventful recovery.

There were no toxic effects of the drug except hyperpyrexia. The anemia was not out of proportion to the severity of the infection. The albumin decreased during the course of treatment, and at no time were red blood cells found in the urine. No skin rash appeared. Subsidence of the cellulitis accompanied the other signs of improvement. Several small suppurated areas along the course of the thrombic veins were treated by superficial incisions, but otherwise recovery took place without surgical intervention.

Case 2. A white male, aged 54, was admitted to Norfolk General Hospital on June 18, 1940. He presented a typical generalized exfoliative dermatitis that had recently developed, a few days after a third dose of neoarsphenamine. A general survey revealed no significant finding other than the skin condition. A systolic mitral murmur was noted, which, to the patient's knowledge, had been present for a number of years. The hemoglobin was 102 per cent; erythrocytes 5,200,000; leukocytes 9,600; nonprotein nitrogen 30; icterus index 4. The urine was negative except for a faint trace of albumin. He remained in the hospital for two days. During his stay there his temperature varied from 98 to 99.8 F. He was given calcium gluconate, intravenously, and returned home for continuation of treatment. Three days later, on June 23, he was readmitted to the hospital with a temperature of 104° and a history of repeated chills during the past two days. He appeared extremely ill. His physical examination was essentially the same as on the previous admission. The skin was more edematous and showed general exfoliation. The hemoglobin was 94 per

6. Spink, Wesley W., and Hansen, Arild E.: Sulfathiazole, J.A.M.A. 115:840 (September 7) 1940.
7. Poole, T. L., and Cook, E. N.: Sulfathiazole and Sulfamethylthiazole in Treatment of Infection of the Urinary Tract, Proc. Staff Meet. Mayo Clinic, 15:113 (February 21) 1940.

cent; erythrocytes 4,800,000; leukocytes 14,000. His urine was negative except for a trace of albumin. The patient was thought to have a general sepsis, which, in view of the widespread skin condition, was believed due to staphylococcus infection. He was started the following morning on sulfathiazole, 90 grains per day. A blood culture taken on admission was positive for Staphylococcus aureus the following day, and a second blood culture on June 24 showed a single colony of the same organism. Thereafter, there were four negative cultures. A maximal concentration of 7 mg. per 100 cc. was obtained in the blood. Immediate improvement followed. On the second day the maximal temperature rise was 103.2°; on the third day, 102.4°; and on the fourth day, 100.4°. The dosage of sulfathiazole was first reduced and then, on the tenth day, was discontinued. On the thirteenth day the temperature rose again, finally going to 103.8° on the fourteenth day, when sulfathiazole was resumed and continued for twelve days. Following the second administration of the drug the temperature rapidly fell and the patient made a smooth recovery.

Aside from the control of the septicemia and the subsidence of the symptoms of acute infection, the most striking effect of treatment was that noted in the skin. The edema and exfoliation improved greatly during the first course of treatment, but recurred during the relapse. During the second course of treatment there was striking and rapid subsidence of the skin lesion, and by the twenty-sixth day of the disease, when the patient was discharged, the skin was practically normal.

Serious consideration had been given, when the treatment was begun, to the possible ill effect of the drug on the skin of a patient already suffering from generalized exfoliative dermatitis. In the face of a general sepsis, however, it was felt necessary to take the risk of further injury to the skin. The resulting effect on the skin lesion was surprising and gratifying and raises the question as to whether the chronicity of arsenical dermatitis is not as much due to secondary infection of the edematous damaged tissue as it is to the residual effect of arsenical poisoning. It is suggested, in view of the known effectiveness of sulfathiazole and sulfapyridine against staphylococcus infection, that these drugs may be useful adjuncts in the treatment of exfoliative dermatitis.

Case 3. A 43 year old female was admitted to Norfolk General Hospital on August 4, 1940, for treatment of right renal colic. Her temperature on admission was 100 F. Her urine contained pus and red blood cells. The nonprotein nitrogen was 43. The white cell count was 9,600, with 79 per cent granulocytes. X-ray of the urinary tract revealed a stone impacted in the right ureter. On August 6 cystoscopy was performed and a catheter was passed beyond the obstructing stone. The following day the patient had repeated chills. Her temperature rose rapidly to 104°, and then to 106.6°. Blood cultures taken on August 7 and 9 showed many colonies of Staphylococcus aureus, and the catheter urine was positive for the same organism. Since the patient was vomiting persistently, she was first started on sodium sulfapyridine, but this was changed to sulfathiazole after the vomiting was controlled. The patient improved rapidly. On August 8 her temperature reached 106°; on August 9 and 10 it was 103°; and after that it ranged from 100 to 101° until August 21, when it subsided completely. On August 12 a blood culture was negative, and subsequent cultures were all sterile. The maximal concentration of sulfathiazole reached in the blood was 4.1 mg. per 100 cc. and there were no toxic manifestations.

Case 4. A white female, aged 25, was admitted to Leigh Memorial Hospital on June 29, 1940, with evidence of an infected abortion. Her temperature pursued an irregular course, with occasional rises above 104°. On the fifth hospital day, when she was first seen by us, her temperature was 104.2° and a blood culture was positive for Staphylococcus aureus. On this day sulfathiazole was begun, in doses of 90 grains per day, and was continued for twelve days. A maximal concentration of 8 mg. per 100 cc. was obtained. Two subsequent blood cultures were negative, and there were no further chills. The patient's temperature gradually subsided, becoming normal on the tenth day after the drug was started. The local pelvic condition cleared up rapidly and she was discharged from the hospital on the twelfth day after the initial treatment. The only other important treatment was one transfusion of 400 cc. of blood. She had no evidence of toxic reaction except the temporary appearance of red blood cells in her

urine. On discharge there were still occasional red cells to be found. The albumin, however, had cleared up, and there were no casts. She had a mild secondary anemia at the onset of her treatment, and this improved while she was under treatment.

Case 5. A white woman, aged 53, was admitted to St. Vincent's Hospital on October 29, 1940, because of the breakdown and necrosis of the scar of an old operative wound. Three months before admission it was discovered that she had diabetes mellitus. She had been placed on a diet without insulin. Twelve days before admission, swelling and soreness were noticed about the old operative wound, and one day before admission the area became necrotic, broke down, and discharged a foul pus. In addition to the above, she gave a history of swelling of her feet and ankles. The chief findings on admission, other than the lesion of the abdominal wall, were obesity, mild myocardial failure due to arteriosclerosis, enlargement of the liver, edema of the ankles, and absense of pulsation of the arteries in the lower extremities. The lesion of the abdominal wall measured 3 to 4 inches across and was characterized by redness, tenderness, and deep induration. There was an area of central necrosis occupying the site of the old abdominal scar. She was afebrile. The laboratory found no anemia; a leukocyte count of 11,950, with 80 per cent neutrophils; and a blood sugar of 476 mg. per 100 cc. Because of the spreading character of the wound into the fat of the abdominal wall in this patient with diabetes and myocardial weakness, it was judged best to place her on sulfathiazole. She was started on 90 grains a day; after three days this was reduced to 45 grains, and was omitted on the seventh day. The redness and tenderness surrounding the area rapidly disappeared and the induration subsided, with the exception of a small area at the top of the wound. Locally, after much necrotic tissue was trimmed away, the lesion was first treated with gentian violet and later with sulfathiazole powder. The powder seemed to clean the wound out well, leaving a healthy, healing surface. At present there is a clean, granulating surface that is healing from the bottom. The diabetes was easily controlled by insulin and diet.

Case 6. A white woman, aged 73, was admitted to St. Vincent's Hospital on November 1, 1940, because of the presence of a large carbuncle on the side of the scalp. This was complicated by an uncontrolled diabetes and by hypertension. The history she gave was that two weeks before admission she noticed a boil on the left side of her scalp. One week before admission the area began to increase greatly in size, with general reddening of the scalp on the left. The laboratory found, on admission, a mild anemia; a leukocyte count of 15,000, with 80 per cent neutrophils; a blood sugar of 200 mg. per 100 cc.; and a nonprotein nitrogen of 21.4. Because of the patient's age, the extensiveness and site of the carbuncle, and the presence of diabetes, she was placed on sulfathiazole and given x-ray therapy. The sulfathiazole dose was 90 grains a day for two days; this was reduced to 45 grains a day for four more days, and omitted on the seventh day. The carbuncle pointed in several places, and when these were opened a little pus exuded. The area was quite vascular, and when traumatized, bled freely. During the first week, the lesion subsided at the periphery, the redness surrounding the area was greatly reduced, and the soreness subsided. During the last week, the lesion has been drying up, and is rapidly healing. The diabetes has been well controlled by diet and insulin.

Discussion

The results obtained in these cases are in accord with the reports of others, and help to confirm our knowledge of the effectiveness of sulfathiazole against infection with Staphylococcus aureus. In our experience sulfathiazole is no more specific against this organism than is sulfapyridine, but because of the lower incidence of nausea experienced during its use, it can be more regularly administered by mouth. No serious toxic effects have been encountered. We would again emphasize the importance of the early diagnosis and treatment of cases of fulminating staphylococcus sepsis before serious secondary foci have been set up. In case 1, in spite of a heavy blood stream invasion, there was no involvement of the lungs, bones, or joints.

We wish to emphasize the danger inherent in the use of the sulfonamide group of drugs, and also the hazards that may be avoided by proper care. During the past year we have seen 9 cases in which serious complications had arisen, and in three of these death resulted. In one case (our own) of influen-

zal meningitis, death occurred with complete disappearance of the granulocytes after the patient had apparently recovered from the original condition. In two cases death resulted from toxic hepatitis. In two other cases toxic hepatitis was detected fairly early and the patients recovered. In one case there was a severe hemolytic crisis, with jaundice, followed by recovery. In one case an extensive toxic encephalitis was observed, with retinal hemorrhages and a bloody spinal fluid. This patient recovered without evidence of residual damage. One case showed marked toxemia, with chills, high irregular temperature, enlargement of the liver and spleen, and moderate anemia. In the ninth case the patient pursued a prolonged febrile course that was terminated promptly by the withdrawal of the drug. Rather curiously, no other toxic manifestations were noted in this case, although the patient was an aged diabetic.

These experiences are recorded to emphasize the importance of considering carefully in each case the relative danger of the disease and the therapeutic agent to be administered. If, after due consideration, one of the drugs of the sulfonamide series is employed, the patient must be observed carefully throughout the time of its use. It has been our practice to make hemoglobin-leukocyte determinations and microscopic urine examinations daily or every other day during the first week, and at longer intervals thereafter. Early detection of toxic symptoms may be of life-saving importance.

Conclusion

Sulfathiazole in adequate dosage is effective in the control of serious staphylococcus infection.

The Need for Students in Medicine.—There is a real need for men with broad minds, who, considering their formal medical education merely as the tools with which to start, continue as students all their lives; men who are critical of tradition and, as well, are critical of the new; subjecting each so-called advance, each new drug, each new method of treatment to careful scrutiny and to serious study before applying it generally to their patients. There is a great need for men who, remembering the Hippocratic teachings, realize that in spite of the laboratory, there is no substitute for a careful study of symptoms and history and a thoughtful general examination of the individual. — Warner S. Bump: Medical Opportunities in a Small Urban Community, Wisconsin Medical Journal, 39:976 (November) 1940.

SYMPOSIUM ON PEDIATRICS

THE ART OF PEDIATRICS

SAMUEL F. RAVENEL, M. D.

GREENSBORO.

"It seems an act of supererogation as extreme as the classic example of such things, the bringing of coals to Newcastle"[1], to present to this section a discussion of the art of pediatrics, since before me sit only exponents of this very art. However, "precisely for this reason a sympathetic and intelligent hearing is assured."[1]

In St. Paul's Cathedral an inscription on the simple tomb of its architect, Sir Christopher Wren, reads, "Stranger, if you seek a monument, look about you." Paraphrasing that, I say today, "Stranger, if you seek to learn of the art of pediatrics, look about you and find it best exemplified in the person of a Sidbury, a Root or a Lesesne Smith."

"Life is short, the Art is long . . . ." So wrote Hippocrates[2] 2,000 years ago. Seldom does one find the maximum development of the art before fifteen or twenty years of practice. The tempering of youthful enthusiasm with judgment, the widening by constant study of the horizons of clinical knowledge, the bitter lessons indelibly burned into memory by tragic errors (he who makes no mistakes makes no progress), a zest for practice, a love of people and of the age old battle against disease and death—all these are steps in the making of a clinician. "Swift and wise decisions have a clear relationship especially to length of experience." (Ryle)[3].

The science of medicine deals with equations and mathematical formulae, with the chemistry of body fluids and milligrams of phosphatase; the art with problems of heredity and environment, of happiness and security, of hygiene and diet, of infection and resistance.

Every successful clinician possesses the ability to "play a hunch". Some have this faculty of apparent clinical intuition developed to an amazing degree. How else may one explain the astonishing consultative brilliance of those men who are able

Read before the Section on Pediatrics, Medical Society of the State of North Carolina, Pinehurst, May 15, 1940.

1. Cheever, D., in J. A. M. A. Vol. 114, No. 4 (January 27) 1940.
2. Hippocrates: First aphorism.
3. Ryle, John H., in Lancet, May 13, 1939.

regularly to cut through a Gordian knot of confusing facts and arrive unerringly at a prompt and exact diagnosis? The basis of this, of course, as Ryle[3] says, "is not innate or intuitive but a complex faculty built on prolonged training and exercise of the special senses, with a sound knowledge of pathologic possibilities. Observational ability and habit, a retentive memory and aptitude for sifting and correlating experience are the main ingredients of this clinical sense."

Pasteur wrote: "Chance favors the prepared mind." Your true clinician attempts unconsciously to live up to the Boy Scout motto "Be Prepared", and by constant study and thought to make ready for any situation that may arise in practice. For example, in recent years and months he has mastered completely the *authoritative* literature on the sulfonamide drugs so that as they became available they could be utilized to the fullest extent within the limits of safety. But almost surely he respects the dictum, "Be not the first by whom the new is tried, nor yet the last to cast the old aside."[2]

There is a part of medicine which has to do with money, another which deals with the body, and a third which is concerned with the intangible things of the spirit. As Mencken[4] says, your true clinician "clings tenaciously to certain moral ideas which have been formulated . . . in the course of long centuries. One . . . is the idea that the sick poor ought to be treated tenderly, 'without money and without price', and restored to health if possible." "Suffer little children to come unto me and forbid them not . . ." So spoke the great Healer[5]. It is probable that if every doctor in America answered affirmatively that ageless query, "Am I my brother's keeper?", to the extent that our best pediatric clinicians do, the specter of Socialized Medicine would be laid and Compulsory Health Insurance would no longer appear as the handwriting on the wall.

To the purely scientific eye of the specialist, an infected tonsil with its load of streptococci and the therapeutic implication is apt to loom disproportionately large. The true clinician sees the tonsil in the whole child, and the youthful patient in his entire environment, buffeted by fate and acted upon by the myriad forces of a complex modern life that may distort the body, warp the soul, and shatter the spirit. Again, as Ryle[3], says, "This estimate of the whole patient and his reactions to his illness may tell more in diagnosis, prognosis and treatment than . . . all the details of a modern 'complete examination' with its attending expense . . ." Peabody[6] expresses beautifully the relationship of our "Beau Ideal" of pediatrics to the laboratory: "The physician should not . . . depend for the interpretation of (laboratory findings) on the man who does the laboratory work . . . The clinician himself should be able to appraise the laboratory findings if the patient is to derive the greatest benefit." Again, "the need in clinical medicine continues to be not for better technicians, but for better clinicians." And, finally, "what is really needed in the application of laboratory methods to the practice of medicine, is not a knowledge of more technical procedures but a much more exact knowledge of a few."

Our clinical artist often must overcome parental influence while nature cures the ills of the child. This feat may require the wisdom of the serpent, the strength of a lion, and the patience of a Job. Some clinicians get away with a Hitler handling of parents, a veritable "Blitzelteren"; others employ the guile of a Farley; while a few are able to drag a herring across the parental trail in the best F.D.R. manner. In any event, every successful clinician has developed his own method of managing parents, who are often, to borrow a baseball expression, "too hot to handle".

Our shining paragon of all the pediatric virtues must, as we have intimated, consider the psyche as well as the circulation of his youthful patients. At times, one obtains the impression, in certain quarters, that a psychiatrist is considered as necessary now to juvenile mental health as a slide rule was once in calculating a formula. There is almost a unanimity of opinion among pediatricians in regard to the great value today of *sound* child guidance as an integral part of clinical practice; but some possibly agree with me in feeling that, upon occasion, a switch in the hand is worth two psychiatrists in the bush when dealing with the modern uncontrolled child.

From the beginning of pediatrics in this country, 13 years has been its upper age

4. Mencken, H. L., in Baltimore Sun, July 28, 1937.
5. St. Mark, 10:4.
6. Peabody, F. W.: Doctor and Patient, New York, The Macmillan Company, 1939.

limit. Children of 13 are supposed to be adults and are turned over to "grown-ups'" doctors, who, as Powers[7] says, "are rarely by interest, training or temperament adept in handling the problems of childhood." I have long felt that the jettisoning of these hapless children at the very time they are beset by the complex and difficult problems of puberty and adolescence is cruel and unjustified. The prop of confidence and security built up during an association of thirteen years is removed at the very moment that it may be most sorely needed. The future White Knight of clinical pediatrics will, I believe, at one and the same time smooth the "acned" brow and soothe the anguished soul of adolescence without slavish regard to exact chronological age limits.

The metamorphosis of fledgling pediatricians into confident, wise, powerful, but gentle clinical warriors may be summarized thus. The majority start off with relatively the same equipment as to intelligence, education, special training. This initial pediatric armament may be compared to a crude bar of iron, which, sometimes, is wrought in the fire of competition and on the anvil of experience, by the grace of God and by the hand of man into a shining sword, a true Excaliber, to fight disease and to cheat death. When this occurs, history affords no parallel of a finer weapon wielded by nobler hands in a greater cause.

7. Powers, G. F., in Yale J. Biol. & Med. Vol. 12, No. 1.

The Placebo.—The placebo has no place in medicine unless it be given in answer to the cry of an anxious family that some medication be given. Prescribed solely to satisfy a patient, such treatment is a therapeutic lie and lays a foundation for mistrust or disillusionment, and is a poor substitute for re-education. More than thirty years ago, Doctor Richard Cabot cited an illustrative case to a group of us who were students at the Massachusetts General Hospital. A neurotic young woman came to the dispensary complaining that she had a frog in her stomach. The diagnostic study showed nothing physically wrong. Perhaps pressed for time, lazy, or possibly mistrustful of his therapeutic ability, the physician on duty prescribed methylene blue, indicating that the medicine would dissolve the amphibian. He told the lady proof of the successful action of the drug would be visible to her —she would void green urine. She did and was convinced! But the therapeutic triumph had only a brief day. Within a short time the patient returned more distressed than ever. "Doctor, my first frog was a female—she laid eggs before she was dissolved, and now the tadpoles make me feel worse than their mother did!" Nor could she be convinced that her first gastric tenant was a male!—Austrian, Charles R., M.D.: The Care of the Patient, New England J. Med. 223:699 (October 31) 1940.

THE SCIENCE OF PEDIATRICS

D. L. SMITH, SR., M. D.

SALUDA.

I have been asked to write a paper on the science of pediatrics. A colleague has been asked to talk on the art of pediatrics. Where the line can be drawn between science and art, I am at a loss to know. I am afraid I shall encroach many times in this talk on the art of pediatrics.

The science of pediatrics, or at least the high degree of scientific knowledge of the diseases which affect children, has been developed within the past thirty years. As I have been practicing during this period, I naturally begin to retrospect, and I wonder how we ever did get any results in our early experiences. However, at times I feel that pediatrics has become too scientific in many ways.

The most striking example, in my opinion, is the giving of artificial food to children in the nurseries to prevent the normal loss of weight during the first few days. In general, I think the nursery is an abomination and should be abolished. The majority of mothers delivered in hospitals are unable to nurse their babies successfully because of the highly scientific treatment in the hospital nursery. Maybe the pendulum will swing back, as it has in other so-called advances.

Another criticism I have of present day pediatrics in the new-born is the saving of many infants who should die, but who are now either epileptics, mental defectives or bedridden beings for life.

During this period of progress many supposed discoveries have been made which have later been proven false. To illustrate: I was visiting a prominent New York clinic in 1920 when I was shown an organism under the microscope which was said to be the cause of sleeping sickness. Later, this organism was disproven. On the other hand, I had the pleasure of witnessing the first lateral ventricle puncture, performed by Dr. Peterman in 1914 at the Mt. Sinai Hospital. This has become a common and useful procedure.

Thirty years ago, our greatest problem in scientific pediatrics concerned the science of feeding; and it took an expert mathematician to figure out formulas in those days. I recall visiting one of the children's clinics in Boston where they had twenty babies on

scientific formulas, and all of them failed to gain. They were all fairly healthy children, and the staff was trying to ascertain the best formulas. The babies were kept restrained in bassinets all day long. I asked the head nurse if she would let a few of these babies play on the floor for a certain number of hours each day. In making rounds five or six days later, it was found that the group that were allowed to play on the floor had made rapid gains as compared with the restrained group. The attending physician was greatly impressed with the gain and remarked to the group making rounds with him that the formulas of these children were evidently suited. The head nurse slipped up behind me and told me that the gain was the result of my suggestion. We now know, of course, that children must have sufficient exercise, and we have discarded the slide rule.

In 1916, a brilliant paper was read on the cure of diarrhea. Treatment was determined by the type of infection the child had. There were two types of infection, and the type could very easily be determined by culture of the stools. Many of us followed this method for two years with no appreciable results, but with great hopes. Later the author admitted that he was wrong with his hypothesis, as many of us had already concluded.

In 1914, the disease we all dreaded most was infectious diarrhea or dysentery in children. Seventy-five per cent of these patients died within a few days of the onset. I have seen many children develop dysentery at 10 o'clock in the morning and be in the hands of the undertaker by 10 o'clock at night. When dysentery would break out in a community, frequently there would not be a child left under two years of age. Now we rarely see infectious diarrhea and when we see it, we are sure of a cure in sulfathiazole, with the aid of other methods at our command.

When I began to practice pediatrics, we knew very little about blood counts and their significance in regard to disease in children, nor was there much use or interpretation of x-rays. These and other laboratory aids have been developed to a surprising degree of accuracy, and I am afraid that many of our students are taught to rely too much on these rather than on clinical observation. Only a few days ago, a baby 8 months old was brought to my office. This child was blue, and would cease to breathe at intervals. X-ray examination revealed an enlarged thymus, and with intensive x-ray treatment, the child became normal. The mother remarked, when she was in my office a few days ago, that she thanked God for the advancement of medical science. I told her that twenty years ago we would not have been able to make this diagnosis.

Because I try to teach my interns to use their sense of observation and to inquire into the background and history of a case, and to use x-ray and laboratory work only as a check, I have the reputation of being an "old fogy" opposed to these modern scientific methods; but I feel sure that I use the laboratory and x-ray far more than many of you younger men suspect.

In consultation work, I never allow my consultant to give me any information in regard to the laboratory and x-ray examinations until I have completed the physical examination and history taking, as I do not wish to have my judgment clouded. After making my own observations of the child, I look at the x-ray, blood work, etc., and then consult with the physician and get his ideas as to the case.

Most of us who are practicing pediatrics have very little opportunity to advance the science of pediatrics. We have to rely on the men working in the universities for information, and we deeply appreciate the work which they are accomplishing.

The science of pediatrics today is so different from that of yesterday that one wonders what tomorrow will bring. In the treatment of children, the five great advances I have witnessed in my thirty years of practice are:

(1) Simple feeding of children.
(2) The discontinuing of the use of calomel and castor oil in children.
(3) The more common use of blood transfusions.
(4) The administration of parenteral fluids.
(5) The introduction of sulfanilamide and sulfapyridine.

I have seen a gradual decline in the death rate of children under 1 year of age from an average of over 110 per 10,000 to less than 60 per 10,000.

Abstract of Discussion

Dr. J. LaBruce Ward (Asheville): This is a splendid paper Dr. Smith has given us. I am going to comment on just one feature of it, and that is his reference to the care of the new born baby in the nursery, particularly in regard to the so-called prelacteal feeding. I think that this has had

more to do with the failure of mothers to nurse their babies than any other one thing. Why so few mothers are able or willing to nurse their babies nowadays, I don't know. But I think that that is, at least, one reason, because the baby is not hungry when it goes to the breast. Nature intended that baby, for some reason best known to herself, to be hungry for two or three days. If she hadn't, she would have put milk in the breast of the mother when it was born. Without prelacteal feedings, the baby will certainly go to the breast hungry and will nurse hard and encourage the flow of milk. I have talked to any number of men who believe in prelacteal feeding, and they have never yet given me any good reason why it should be used. Their only answer is, "We can show you a group of a hundred babies who haven't lost weight." Do we want to keep them from losing weight? I say no, that it is a normal process.

Dr. L. W. Elias (Asheville): I am thoroughly in accord with Dr. Ward and Dr. Smith about giving nature as much chance as possible. I used to do general practice and obstetrics and I thought I got better results by giving nature a chance, and using forceps as little as possible, contrary to what some are advocating and practicing today.

I don't want to discuss the whole paper, but there is one thing I would like to emphasize that might have grown out of his paper, and, also, out of a paper I heard at the Public Health Session, in which it was stated that the stay in the hospital was one means of educating the public as to the things that should be done for the health of the community. Many hospitals are not kept in a very sanitary condition, and furnish bad training for people who go there. Frequently in the children's ward the shades are kept down and the transoms closed.

Dr. Smith suggested that we often get into habits just because it is convenient, and forget that we are not only to help the baby but to train the public. If the mothers take the babies home and put them in dark places out of the air and light, I think we have done a dis-service to our patient and to the public.

Dr. G. W. Kutscher (Asheville): One point I'd like to add in the way of discussion is the advice that mothers get from nurses. We have had a good deal of trouble with some of the queer ideas that mothers have. I finally questioned several of them and found they get the advice from the nurse. They haven't asked the doctor.

Dr. D. L. Smith, Sr. (Saluda): I think every child that is born ought to be put in the bedroom with the mother. When the mother hears a child crying in the nursery, she knows it is her baby, and she is nervous and upset all the time. Until we get the obstetricians to take that viewpoint, we are not going to get anywhere.

I intended to bring in something about canned foods in my paper. We ought to use the fresh foods whenever we can. I think it is the line of least resistance for mothers to use so many canned foods for their children.

I remember a remark I made to a man who was detailing strained vegetables. I said, "You know, our children are not allowed to walk now; they ride in a car all the time. They have lost the art of walking, and now they are going to lose the art of digestion because the food is pre-digested." Canned foods do serve a purpose, but I think they have made digestion too easy for these babies.

Another thing that I find very common in all "scientific pediatrics" is to boil water given to children. I don't allow any water given to my children, except where they are using well water, to be boiled. The baby takes cold water much better than boiled warm water.

PEDIATRIC ECONOMICS

B. W. ROBERTS, M. D.
DURHAM.

With the present public pressure on the medical profession, a critical examination of our relations with the public is forcing itself upon us. To examine ourselves objectively and subjectively at any time is not unhealthy, and this fits in with the trend and scope of all the papers in this section.

Individually, each man should look to his own sphere of influence wherever it may be found. The high regard the medical profession has for so long enjoyed—a good will that in no small part makes the financial rewards what they are—is based on the integrity and ability of the men in the profession, and I think only slightly less on the charity we do. The social and political forces now active are going to demand a fuller health service for the indigent and unfortunate—if not at the expense of the government, then at a price the poor can pay. The pediatrician is subjected to the economic forces affecting medicine in general, and in turn is subjected to an economy peculiar to his specialty. I shall mention chiefly the economic factors peculiar to pediatrics.

Young people have the babies, and young people are not as well established financially as older people. This is favorable to the young pediatrician beginning practice, because young people know and associate with young people.

Because children grow out of our age limits, there is a relatively large turnover in our patients, and that makes it essential that we have a steady accretion to our practice.

There are few procedures in pediatrics that can command large fees other than diagnostic surveys and transfusions; consequently the fees are consistently minimal.

We are denied fracture work and the minor surgery that so many general practitioners do. We are cut off from the elderly chronic invalids and their insurance, from industrial work and contract practice, and from insurance examinations—so many of the small fees that in the aggregate are of importance.

The public health and school authorities are invading our precincts, seizing what they can, constantly trying to enlarge their sphere. We in complacent dignity time and again acquiesce to abilities that are not our

equal. We must realize, however, that their place is large and essential.

In our relations with the public our fees are an economic consideration that might be studied. To this end I have sent a questionnaire to most of the pediatricians of the state. I missed a few whom I have later thought of and whose pardon I ask for not inquiring into their finances. I assure all who answered the questionnaire that their identity is lost and has never been known to me.

We should examine the finances of our specialty in order to give pediatricians a fair return for our indefatigable work and at the same time protect the public from a burdensome over-charge. We should make enough to insure savings for old age and for the education of our children and for a good home. Beyond that, should a doctor charge to the point that he becomes wealthy when all whom he serves are poor; or should not he become wealthy if all whom he serves are wealthy? Certainly the profession has in most cases been considerate in its charges and fitted them to the ability to pay.

I obtained the following data from the questionnaires sent out:

No. 1

What do you charge for:

1. Office visits? $2.00—9; $3.00—15.
2. Night visits? $5.00 — 19; $3.00 — 2; $5.00-$10.00—3.
3. First visits? $5.00—8; $3.00 — 7; $4.00 — 2; $5.00-10.00—2; $3.00-5.00—5.
4. House visits? $3.00 — 17; $4.00 — 3; $3.50-$5.00—3; $5.00—1.

No. 2

What do you charge for:

1. Diphtheria toxoid? $1.00—3; $2.00—15; $3.00—2; $5.00—2.
2. Smallpox vaccination? $1.00—5; $2.00—14; $2.50—1; $3.00—3.
3. Shick test? $1.00—8; $2.00—13; $2.50—2.
4. Tuberculin? $1.00—7; $1.50 — 1; $2.00 — 14; $2.50—1; $5.00—1.
5. Dick test? $2.00—generally; few replies.

No. 3

What do you charge for:

1. Complete physical examination? $2.00-3.00 & lab.—8: $5.00 & lab.—9; $5.00-10.00 & lab.—3; $10.00-25.00 lab. incl.—4.
2. Hospital work per day? $2.00—1; $3.00—6; $4.00—3; $5.00—8: flat rate—5.
3. Transfusions? $15.00—4; $25.00—9; $20.00-$50.00—7; flat rate—2.
4. Opening ears? $2.00-5.00—2; $3.00—3; $5.00—9; $10.00—3.
5. Intravenous fluids? $10.00—2; $5.00-20.00—1; $3.00-5.00—1; $5.00—10; flat rate—8.

No. 4

Do you charge

1. More for longer visits? Yes—2; no—22.
2. For telephone calls? Yes—1; occasionally—3; no—20.

(One doctor did charge and it took five years to recover from the damage.)

3. Is there an additional charge when two children are seen on one visit? No—9; yes—14; $1.00—13; charged in office only—4.

No. 5

Do you care for babies on a monthly basis? Yes—6.

($5.00 per month usual charge. Total for all 6 men on this basis—70 babies.)

No. 6

1. Do you have an associate or an assistant? Yes—9; no—14.
2. Do you have an office technician? Yes—9; no—14.

No. 7

Do you do:

1. Tonsillectomies? Yes—2; no—21.
2. Circumcisions? Yes—12: no—11.
3. Is any substantial part of your income from tonsillectomies and circumcisions? No — 23; yes—1.

No. 8

1. Do you have any income from the operation of clinics? No—11; less than $250—8, $250-$750—5.

No. 9

Income 1939 (20 answers)

Under $5,000—2; $5,000-$8,000—9; $8,000-$10,000—2; $10,000-$15,000—6; $15,000-$20,000—1.

No. 10

Average Income

Under 10 yrs. of practice	$8,000
10-15 yrs. of practice -	10,000
15-20 yrs. of practice -	8,000
20-30 years of practice	
1 nearly	20,000; 3 average 4,500
Over 30 yrs. of practice	6,700
Average income for all (24 replies) - - -	8,800

All 1939 incomes reported increased over 1935, with one exception.

No. 11

Average Office Expense

Without technician — $120.00; with technician — $178.00.

Under $100—4; $150-200—8; $100-150—5; over $200—7.

No. 12

Percentage of Charity Work

1. Office—average estimate - - - - 21%
2. House—average estimate - - - - 14%
3. Hospital—average estimate - - - 38%

This study shows a marked disparity in some charges and a marked similarity in others. It seems that time and custom and the fact that some charges have reached a common level would make them satisfactory to all concerned. Where there is marked variation they should be stabilized.

It is suggested that the State Pediatric

Society might appoint a committee to study our charges and to give a recommendation for these charges. An office fee in Charlotte should not differ from an office fee in Raleigh for people in the same economic status—that is if the patient gets the same standard of services in both places, and I believe he would.

Abstract of Discussion

Dr. Arthur H. London, Jr. (Durham): Dr. Roberts has given us a very timely and a very excellent paper, and I hope it will bring some results. Those of you who attended the American Academy of Pediatrics in Cincinnati heard a similar subject discussed, and those of you who read the **Journal of Pediatrics** and read the report on the round table discussion on economics, see that the Academy is interested in it.

I think the figures that Dr. Roberts has brought out, and the surprisingly low income for specialists, should cause us to take a great deal of thought. If he would work out your net income, I think he would find that it is far below the average of the general practitioner.

The man in a small town is not making over $8,000 a year. There is something wrong with that, and I think the fault is with ourselves. We have started this thing off. The specialty of pediatrics in the South wasn't very well accepted in the beginning, and of necessity we set our fees low. If we could have some coordinative effort, I think we could at least increase our fee so as to increase our income. That may eliminate some of the people who are coming to us as practitioners. The people who can't afford to pay a fee can come to the clinics free, and eliminating that part from the office will give us more time to do work on our own private practice.

The Academy is taking a great interest in this subject, and a great many plans are being considered. This is all a plug for the Academy. I think if all the men whose credentials are such that they can join the Academy would do so, and with the national effort, put on some local effort in the state, we could help the financial status.

Dr. Aldert S. Root (Raleigh): Dr. Marion once told me that North Carolina had the best organized pediatrics force of any state in the Union, with the exception of Texas. We are general practitioners among babies, so we can't expect to have much more of an income than the general practitioner—particularly, when such a large percentage of our work is charity. After all, it seems to me that we must have the greatest satisfaction of any group of people, because we have the opportunity of doing so much good among these charity cases and in educating the public. I don't see much hope of our increasing our income very much. I think we would do a great deal of damage to the people who want us and who need us if we put our prices beyond their reach.

The only hope, I think, of our having a large income is to have the Government pay us something for looking after these children. I am not advocating Government management of medicine; that is our job. On the other hand, I think they ought to provide for the indigent children, and I think that we pediatricians ought to share liberally in that.

Dr. M. Y. Keith (Greensboro): I think that pediatricians should have their fees at a definite level throughout the state. I find that in some towns they are charging $2.00 for a general office visit, and in some, $3.00.

Because of our limitations our income is far less than that of general practitioners. We do not have an entree to surgery or to obstetrics or tonsillectomies that the general man does to increase our income. Where the general pediatrician falls down is where Public Health work takes it up. It is our own fault if they are doing what the general pediatrician should do, because there is no reason in this world why we shouldn't get into the field of pediatrics and take care of every bit that comes our way.

I feel that there is no member of this Section who does not take care of every baby that comes to his office, and that no one has ever been turned down for any pediatric advice or any pediatric examination or any medical care that could be given. However, I do feel that the pediatricians in North Carolina are really underpaid for the standards which they hold compared to other pediatric organizations.

Dr. L. W. Elias (Asheville): Of course, success in pediatrics, as in any other branch of medicine, depends upon the man—his personality and his ability. Yet we have had a large number of statistics presented here, and I would be interested if the doctor would tell us which practitioners were making the largest income—the ones who were charging small fees for office and house visits or the ones who charged more. Should we charge larger or smaller fees if we want to increase our income?

Dr. D. L. Smith (Saluda): This problem of income is a very serious one. I, very probably, have a little different situation in my office from most of the pediatricians practicing in the state, in that I try to keep all of my patients that I can out of the hospital.

Whenever you hospitalize the patient, the hospital gets the bulk of the income and you don't get anything at all. I do all my own transfusions right in my office, my matching and everything else, and I charge those patients a flat fee. Sometimes I do three or four transfusions a day, and I find it a very substantial source of income. My empyema cases I do not allow to go into the hands of a surgeon. I haven't in the past ten years hospitalized a patient with empyema. I do that work right in my office.

Dr. W. P. Richardson (Chapel Hill): I think there is one point we have left out here. Apparently, we are competing with the general practitioner in many of these things on his own ground. I wonder if it shouldn't be part of our function to do some of the things that the general practitioner is not qualified to do or hasn't time to do.

One is the question of habit formation of the pre-school child. I don't think we would find any competition in dealing with that very important period when the child may develop all sorts of physical defects and bad habits. I think that field should be developed as part of our work. It is not apparently being done by the general practitioner.

Also, the question of marriage counseling. Certainly we have some interest in successful and happy marriages. We know there are a great many which are not being handled right. Some of us should be preparing ourselves to do that sort of thing.

Then there is educational counseling. Adolescence is not a very happy time. It is because parents don't understand the problems of the adolescent child and nobody is bothering about it. He gets through it and afterwards settles down. Somebody spoke of abandoning the child at twelve or thirteen—when a fellow needs a friend. It seems to me the pediatrician could develop that as part of his

legitimate function. Certainly parents are going to ask somebody those questions. They ask the doctor first, and when he doesn't answer them, then they ask the Christian Scientist, or the consulting psychologist, or the woman next door, or somebody with a hunch, and they slip away from medicine into the hands of the cultists.

Chairman Kutscher (Asheville): There is one phase of this subject which I thought would elicit more discussion. That is contract prices. I wonder if any person here has had the experience I had with it. I had about twelve patients, and I think I concluded this experience about two or three years ago. I estimated that my average first year work for the average baby netted me $66.00 a year. So for a year's care of a baby I charged $72.00—$6.00 a month. It was a very unhappy experience for me. A few people went through with it and they were quite pleased, but in the majority of cases it was not satisfactory for either party. Those who went through with it averaged about nine months, and they got a smallpox vaccine, diphtheria inoculation, and so forth, and then, somehow or other, they just stopped. I don't think they went to my competitors. They just simply faded out of the picture; some moved. But every person who went through as much as nine months got more office calls and so forth than would have been represented by the $72.00. Some people, I think, had a slight inclination to abuse the privilege of coming into the office at any time they wished. The whole thing just sort of simmered out. It was, I thought, going to be a popular thing.

Some other person might wish to contribute his experience.

Dr. Reynolds, we would be glad to hear from you.

Dr. Carl V. Reynolds (Raleigh): I want to throw out a little challenge to the gentleman who said that the Health Department was over-stepping its bounds. In my mind, it is to the contrary. If the pediatricians did their entire duty from the birth of the child to the school age, there wouldn't be any use of any health department or health agencies. It is only where they leave off that it becomes absolutely necessary and essential for the health group to step in and protect the citizens.

To illustrate: North Carolina ranks third from the top in the death rate from diphtheria in the Union. Now, who is responsible for that? Is this a challenge to the pediatricians, or not?

Our State Board of Health, in an effort to lower that morbidity and mortality rate of diphtheria, got the Legislature to enact a law making it mandatory for children to be immunized against diphtheria. The pediatrician, and I classify the pediatrician as anybody taking care of a child, should be a health master rather than an individual. He should feel the responsibility of the entire group of children in a family as a health master.

I have sent out every health officer in the state since the law came into effect the first of January to serve notice on the parents of all the infants that were born within that law that had not been immunized to have them immunized. How that will work out, I don't know. But I hope that we may lower that high morbidity and mortality rate of diphtheria this year; and I don't know who can help us better than can you, save the public health personnel.

Dr. Aldert Root (Raleigh): I am chagrined over the record of North Carolina in diphtheria. We lose something like 200 cases of diphtheria every year in North Carolina, whereas in New York State, with a population about three times as great as North Carolina's, there are something like 26 deaths. That is a disgrace to us doctors and to the North Carolina Board of Health. I think that the record of the State Board of Health is fine, except in diphtheria, and I don't think they have done enough about it. Perhaps we haven't. I think it is up to the State Board of Health and to us doctors to correct this humiliating situation.

Dr. W. P. Richardson (Chapel Hill): I wonder if it wouldn't be a good thing if this section took upon itself this year, through the appointment of a special committee, to discuss with a group that Dr. Reynolds might designate what we as a Section and as a profession could do to remove this disgrace, as we all admit it. Isn't it possible that such a committee acting with such a delegated group could bring the attention of the doctors, at least, to their duty; because, after all, the parents are going to do what their own doctors advise. It seems to me it wouldn't be a very difficult thing to work out some machinery by which something could be accomplished to clean up that situation.

I would like to move that you appoint a committee, possibly the outgoing president and incoming president, to agree upon such a committee.

. . . Motion was made and seconded to have a committee appointed by the outgoing and incoming chairmen to meet with a delegation appointed by Dr. Reynolds of the State Board of Health.

Dr. Arthur H. London, Jr. (Durham): A point which Dr. Root and Dr. Reynolds overlooked, and which I think is probably the cause of our difficulties is the question: What is our duty, and are we doing our duty? I don't think there is one pediatrician here doing a complete job of health care. We give a lot of shots, and then we become lax; if the parents don't come back we make no attempt to follow up. When diphtheria toxoid came out it was the general practice to give one dose of State toxoid. Not only that, but, principally through the Health Department, it has permeated throughout the State that the time to give diphtheria toxoid is at six months. I think that is entirely too early. If we give toxoid while the child has natural immunity, he doesn't have a good reaction to it and doesn't develop immunity.

I think the suggestion Dr. Richardson has made that we have somebody to work with the Board of Health is a good one.

Dr. Carl V. Reynolds (Raleigh): I want to say this: The State Board of Health, as has been said before, is a child of this Institution. It belongs to you. There is now existing a Pneumonia Consultation Committee with the State Board of Health, and we would be delighted to have a committee from this Section to work with us. The larger, the better.

. . . The motion that a committee be appointed by the incoming and outgoing chairmen of the Section to cooperate with the State Board of Health committee on the diphtheria problem as a whole was voted upon and carried.

Chairman Kutscher: Any further discussion? If not, I will ask Dr. Roberts to close.

Dr. B. W. Roberts (Durham): I am sorry I can't answer Dr. Elias' question. I hadn't thought of that particular phase of the questionnaire and have not worked it out.

I hope Dr. Reynolds didn't feel that I was expressing any animosity toward the health authorities at all. I think the general feeling as brought out by the discussion has already clarified the point.

THE AIMS OF THE AMERICAN ACADEMY OF PEDIATRICS

ARTHUR H. LONDON, JR., M. D.

DURHAM.

History: Pediatrics is one of the younger special branches of medicine. At its beginning, the time and energy of the founders was consumed by study and research on special problems of children. Efforts along this line have brought forth all the discoveries especially related to pediatric practice, and have given us the understanding of children's diseases which we have today. However, while we were engrossed in these problems, a great many lay organizations became interested in the general problems of childhood. The White House Conference brought forcibly to our attention the fact that, while great advances had been made in the knowledge of children's diseases, the pediatricians had overlooked the problem of the child as a whole. With this in mind the leading pediatricians of this country founded the American Academy of Pediatrics. Article III of the constitution defines the objects of the Academy as follows:

> Section 1: "The object of the Academy shall be to foster and stimulate interest in pediatrics and correlate all aspects of the work for the welfare of children which properly come within the scope of pediatrics. The Academy shall endeavor to accomplish the following purposes:
>
> "(a) To establish and maintain the highest possible standard for pediatric education in medical schools and hospitals, pediatric practice, and research;
>
> "(b) To perpetuate the history and best traditions of pediatric practice and ethics;
>
> "(c) To maintain the dignity and efficiency of pediatric practice in its relationship to public welfare;
>
> "(d) To promote publications and encourage contributions to medical and scientific literature pertaining to pediatrics;
>
> "none of which objects is for pecuniary profit."

With these high objectives in view, the founders appointed many committees to initiate the work. Space does not permit the enumeration of all the appointed committees. The following committees will give you an idea of the scope of the work undertaken:

1. Publication. 2 Child Health Relations. 3. Clinical Investigation and Scientific Research. 4. Contact Infections. 5. Immunizations and Therapeutic Procedures for Acute Infectious Diseases. 6. Infantile Paralysis. 7. Medical Education. 8. Pediatric Nursing. 9. School Health and School Health Education. 10. Publicity.

These and eleven other committees have worked diligently on their respective problems. The Committee on Publications has completed its task; the results of its work are seen monthly in the publication of the official organ of the academy, *The Journal of Pediatrics.* The Committee on Immunization and Therapeutic Procedures for Acute Infectious Diseases has submitted its report in the form of a pamphlet, which may be used by all physicians as a guide for the proper procedures in this field. A copy of this has been sent to all Academy members and is available to all physicians at a nominal fee. The Committee on Contact Infections has had printed a small folder for distribution by physicians, which points out the dangers of contact infections and urges parents to have all adults (parents and servants who are in close contact with children) examined for possible contagion, especially tuberculosis and venereal diseases. Other pamphlets published are "For the Sake of the Children" and "The Health Supervision Your Child Should Have."

The Committee on Cooperation with non-medical groups and societies has worked in close cooperation with the National Parent-Teacher Association, especially in the summer round-up of pre-school children, and has guided the organization as to the proper type of physical examination.

Through the efforts of the Academy and with the cooperation of Mead, Johnson and Company, a talking moving picture has been made describing the proper procedure for physical examination of children and emphasizing the need for such an examination. This will be shown to lay groups throughout the country.

In order to make its work more effective, to prevent centralization of power, and to meet the individual requirement of each section, the Academy is divided into four regions—North, South, Mid-West, and West, with a chairman of each region. Each region has an annual meeting. The programs presented include individual papers and round-table discussions on various problems of childhood, led by national authorities on the

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particular subject. These serve as short, intensive post-graduate courses for the members and other interested physicians, for all physicians are invited to the meetings. The regions are further subdivided by having a chairman for each state, who encourages the members to carry on the suggested work of their Academy.

The Academy is working in close cooperation with the U. S. Children's Bureau; in fact, the assistant chief of the Bureau, Dr. Martha Elliott, is a member of the Academy, as are many of her co-workers.

The specific activities of the Academy in this state are so far not very numerous. We have endeavored to cooperate with the national committees in their work. Three members of the Academy are on the Advisory Committee of the Maternity and Child Service Division of the State Board of Health. It is planning to continue to work in close cooperation with Dr. George M. Cooper, Chief of the Division of Maternity and Infant Welfare of the State Board of Health, and to aid in fostering programs of the Department of Child Health in this state. We hope in this way to lower the infant death rate in the state and to remove North Carolina from the lower ranks in the national rating. An effort will be made to encourage close cooperation between the pediatricians of the state and lay bodies dealing with child welfare. We hope to increase the use of pediatricians in the summer round-up of preschool children. We shall endeavor to disseminate information obtained by the national committees to all physicians interested in children; to search for methods to protect further the health and welfare of children; and to promote legislation to insure this protection. In this connection, the Legislative Committee of the North Carolina Branch of the Academy has prepared legislation to be presented to the next General Assembly which would make the allocation of public school teachers depend upon pupil enrollment rather than pupil attendance, hoping by this to decrease the morbidity among school children by removing undue emphasis upon attendance. This committee is also considering legislation to decrease lye poisoning in this state and to decrease milk-borne infections by requiring the use of pasteurized milk in public eating places.

MORTALITY WITH CAUSES OF DEATH IN A SERIES OF 917 CONSECUTIVE HYSTERECTOMIES

E. S. BOICE, M.D., F.A.C.S.

ROCKY MOUNT

Since the opening of the Park View Hospital in July, 1914, 917 patients have been operated upon for removal of the uterus. These operations were performed by one of three surgeons—Dr. B. C. Willis, Dr. N. P. Battle, and the writer. There were 23 deaths in the series of 917 cases, giving a total mortality of 2.5 per cent. In 656 instances the operation selected was supravaginal hysterectomy. Of these 20 died—a mortality of slightly over 3 per cent. For the remaining 261 cases a complete hysterectomy was done, with 3 deaths—a mortality of 1.15 per cent. Of these total hysterectomies 55 were done by the vaginal route, with one death—a mortality of 1.81 per cent—; while 206 were done by the abdominal route, with 2 deaths—a mortality of slightly less than 1 per cent. Of the 656 supravaginal operations 13 were Porro cesarean sections, 3 of which terminated fatally — a mortality of 23.7 per cent.

Because of the relationship between technique and mortality, and to obviate useless repetition in presenting the case records, certain technical details will be discussed briefly.

The vaginal operation has been reserved largely for those patients with a relatively normal uterine body and adnexa who were suffering from varying degrees of uterine prolapse and cystocele. In general the principle of the Mayo vaginal hysterectomy has been employed, correction of enterocele, rectocele, and relaxed perineum being added as seemed expedient. When there was much disease of the uterus or adnexa, we felt that the abdominal operation would probably give a better result. For the supravaginal operation we have used the usual technique, with closure and suspension of the coned out cervical stump and suture of peritoneum over raw surfaces. Since Richardson[1] described his operation in 1929 this has been the method followed when complete hyster-

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1. Richardson, Edward H.: A Simplified Technique for Abdominal Panhysterectomy, Surg., Gynec., and Obst. 48: 248 (February) 1929.

ectomy was done. We have used drainage rarely, and almost never by the vaginal route.

In a number of supravaginal operations a preliminary cauterization of the cervix has been done (after carcinoma was ruled out), thus giving practically the same end result as a total removal, with less risk and with no deformation or shortening of the vaginal canal.

Whenever a total abdominal hysterectomy is planned a careful vaginal cleansing is carried out by the surgeon, using a speculum and a good light. An antiseptic pack is left in the vagina to be removed just before the vagina is opened. At times before panhysterectomy cauterization of the cervix or of a projecting tumor mass (after securing tissue for microscopic examination) has proven useful to destroy infected or sloughing tissue which otherwise would have been a source of contamination when the vagina was opened from above.

In recent years we have come to feel that the preliminary vaginal preparation should be carried out in all cases, whether or not a complete operation is planned at the outset. This safeguard will be invaluable should an unsuspected carcinoma or other condition be found which would necessitate a change from a projected subtotal operation to a total one. Also it is probably a wise procedure to cauterize the cervix (after biopsy) in most if not in all cases of proposed supravaginal hysterectomy to lessen the chance of future disease, either malignant or inflammatory, of this structure. While some surgeons do the cauterization after completion of the abdominal operation, we have felt safer in cauterizing as a preliminary procedure, thus destroying the mucosa up to the point of later amputation, without the risk of involving the sutured stump.

When cauterization is done preliminary to subtotal hysterectomy, there is a possibility that the resulting coagulation of tissue and blood might prevent drainage of infectious material from the uterus with resulting spill when the cervix is cut across. This was suspected as a possible source of peritonitis in one of our cases, and we now make sure that the canal is open. Also, we usually leave a temporary dry vaginal pack to absorb discharges.

Closure of the cervix by suture, preliminary to panhysterectomy, has been employed occasionally, but probably not frequently enough. At least one of our fatalities may have resulted from failure to carry out this procedure.

The use of catheters in the ureters to prevent ureteral injury has been advocated. We have practiced this in a few instances, but not in recent years. This procedure would have been valuable in at least one case, a panhysterectomy for a large adherent fibroid, in which the ureter was severed four inches above the bladder. The ureter apparently healed completely following immediate repair over an indwelling catheter, but some vaginal leakage developed later. There was also one other instance of possible but unproven ureteral involvement in which a catheter was not used. These were the only known or suspected cases of ureteral injury in this series, and there were no cases of bladder or rectal injury.

In one or two of our peritonitis cases it seemed possible that infectious material had been squeezed down from the uterus by a tenaculum or by other pressure, with resulting contamination when the cervix was cut across. Since Richardson[1] called attention to the danger of disseminating cancer cells by this pressure in cases of malignancy, we have discarded the tenaculum in all cases in favor of clamps on the ligaments close to the uterus.

As might be expected, local sepsis and peritonitis accounted for almost half of our deaths. In some cases this may have been unavoidable, but more often some omission or slighting of the technique outlined above was probably responsible, particularly in the earlier years. In other instances disaster resulted from a lack of, or a failure to use to the best advantage, such agents as blood transfusion, intravenous glucose, intravenous acacia, etc., and the various modern laboratory aids for estimating the patient's condition. Undoubtedly, in some instances, a more prolonged period of preoperative preparation, particularly the more liberal use of blood transfusions and blood building agents, would have been helpful and in some cases probably life saving.

At times the principle of allowing complete subsidence of pelvic inflammatory disease has been violated with resulting unnecessary shock and blood loss, but it seems doubtful whether any of the peritonitis cases can be justly attributed to a stirring up of pelvic infection. More likely, at least in most instances, the contamination came from the

cervix or vagina. However, the lowered resistance incident to a recent acute inflammation, and the shock and blood loss of an operation made unnecessarily difficult by such inflammation, probably were active contributing causes in some instances. Increasing experience with these acute conditions has led to increasing respect for blood examinations, especially of the sedimentation rate, and for the correct interpretation of the findings of bimanual pelvic examination.

In classifying the causes of death it is found that there were 10 patients dying of peritonitis, in most instances probably the result either of some fault in technique or of inadequate pre-operative treatment, or both. Two of the Porro cases fall in this group, and both were obviously badly infected before operation was undertaken. For one of these operation may have been ill advised, but in the other case, a ruptured uterus, there was no alternative. Both of the fatal abdominal panhysterectomy cases died from peritonitis. One might have been saved had the cervix been closed by suture before operation. The other, a patient with extensive carcinoma of the cervix who was operated upon twenty-four years ago, would now be treated with radiation.

There were 4 patients whose deaths were attributed to shock and hemorrhage. One of these was an anemic tuberculous woman with premature separation of the placenta in the eighth month of pregnancy for whom a Porro operation was deemed necessary. Another was operated upon too soon after an acute pelvic inflammation. The other 2 deaths probably resulted from faulty control of bleeding points in the operative area.

One patient died while being operated upon for a secondary intestinal obstruction, death apparently being due to spinal anesthesia.

One patient died from congestive heart failure precipitated by an excessive use of parenteral salt and blood transfusions. These were employed to combat a septic condition which autopsy showed was due to an unsuspected blocked kidney, apparently secondary to ureteral involvement.

In the remaining 7 cases death resulted from a variety of secondary conditions not attributable to any fault in the technique of operation. In at least 4 of these 7 a fatality might have been avoided by more complete diagnosis or by better postoperative management.

For the sake of brevity, in the following summary of the fatal cases only such facts are included as seem to have a direct bearing on the cause of death in each instance.

Case 1. A white woman, aged 61 years, was admitted on April 5, 1916, with a large sloughing carcinoma of the cervix. An abdominal panhysterectomy was done on April 8, 1916, drainage being established through the vagina. Death from sepsis occurred on the fifty-second postoperative day. We have long since discontinued operation for this type of case in favor of radiation.

Case 2. A Negro, aged 39 years, was admitted on July 18, 1926, with a mild flare-up of an old pelvic inflammatory disease. This subsided satisfactorily after one week. Blood counts were normal from the beginning; the maximum fever was under 100. There had been a previous amputation of the cervix. At operation on July 26, 1926, the pelvic organs were found buried by adhesions in the pelvis. The uterus was large and boggy. The tubes were sealed; there was no pus. The appendix was adherent. A supravaginal hysterectomy, bilateral salpingectomy, and appendectomy were performed. The patient died on the ninth postoperative day. Autopsy showed a generalized peritonitis. The cervix stump and appendix stump had both healed, with no adhesions to either one. It was noted that "most likely the contamination was from the cervix" when it was cut across. Because of the previous amputation of the cervix the operation was practically a panhysterectomy for which adequate vaginal preparation had not been made. There was also the possibility that infectious material had been squeezed down from the uterine cavity.

Case 3. A 37 year old Negro was admitted on August 15, 1935, with fibroids and quiescent pelvic inflammatory disease. She had a marked secondary anemia, with only 2,120,000 red blood cells, and 20 per cent hemoglobin. A supravaginal hysterectomy with bilateral salpingo-oophorectomy was performed on August 21, 1935. Blood transfusions were given before and after operation. Death on the fifth postoperative day was due to peritonitis (autopsy finding). The infection here probably came from the cervical canal, which was found to contain an exudate-covered fibroid projecting downward below the point of transection of the

cervix. A pack in the cervix and closure by suture followed by panhysterectomy might have prevented the peritonitis. Also a more prolonged period of pre-operative preparation, including especially enough blood transfusions to correct the anemia, would have been advisable.

Case 4. A Negro, aged 33, was admitted on October 18, 1938, with a diagnosis of uterine fibroids and quiescent pelvic inflammatory disease. The white cell count was 7,000, with 58 per cent polymorphonuclears. The red cell count was 4,920,000, and the hemoglobin was 84 per cent. The sedimentation time was 112 minutes. At operation, a panhysterectomy, the preoperative diagnosis was confirmed, no acute condition being found. However, death from peritonitis resulted on the seventh postoperative day. The focus from which the peritonitis developed was not definitely established. Vaginal contamination seemed unlikely, as there was no cervical ulceration and no other gross vaginal inflammation, and a careful vaginal preparation was done by the surgeon before operation. The possibility that infectious material was squeezed down from the uterine cavity must be considered. Here again closure of cervix by suture might have prevented the spread of infection.

Case 5. A 41 year old Negro was admitted on July 23, 1933, with bleeding uterine fibroids and secondary anemia. There were 9,400 white blood cells, with 78 per cent polymorphonuclears. The red cell count was 1,590,000, with 40 per cent hemoglobin. The sedimentation time was 86 minutes. Following transfusion there were 3,480,000 red blood cells, with 50 per cent hemoglobin. On July 25, 1933, supravaginal hysterectomy, bilateral salpingo-oophorectomy and appendectomy were performed. The patient died on third postoperative day, apparently from peritonitis. No autopsy was done. This patient had been flowing steadily for two weeks, and the cervical canal, which was relaxed and open, was probably the source of her peritoneal infection. Packing and suture of the cervix followed by panhysterectomy might have prevented the peritonitis.

Case 6. A white woman, aged 44, was admitted on June 5, 1921, with a large fibrotic uterus and a left ovarian cyst. On June 18, 1921, cauterization of a cystic inflammatory cervix was followed by supravaginal hysterectomy, bilateral salpingo-oophorectomy, and appendectomy. A small mass of partly organized infected tissue was found in the uterus. There was an apparent postoperative obstruction, which was proven at operation on June 21 to be a peritonitis. The patient died on June 23, the fifth postoperative day. Smears from the peritoneal exudate showed intracellular diplococcic. Since the vagina was cleansed and the cervix cauterized preliminary to the laparotomy, it was felt that probably the contamination came from a spill of infectious material from the uterus when the cervix was cut across. Blockage of the cervical canal as a result of the cauterization may have been a contributing factor.

Case 7. A 36 year old Negro was admitted on March 25, 1929, with a diagnosis of bleeding fibroid and secondary anemia (2,810,000 red blood cells, and hemoglobin 25 per cent). No periods had been missed. There had been constant bleeding for the previous three months. After a blood transfusion, a supravaginal hysterectomy was done on March 30, 1929. The relaxed cervix was found to be filled with clotted blood, and the uterus contained a mass of degenerated, infected, adherent placenta. The patient died of peritonitis on the fourth postoperative day, evidently due to infection from the septic uterine contents when the cervix was cut across. Closure of the cervix by suture followed by panhysterectomy might have saved this patient. Of course, had a correct pre-operative diagnosis been made, hysterectomy would not have been undertaken.

Case 8. A Negro, aged 52, was admitted on May 4, 1938, with a provisional diagnosis of uterine fibroids and quiescent pelvic inflammatory disease with secondarily involved appendix. The white cell count was 9,500, with 81 per cent polymorphonuclears. There were 3,670,000 red blood cells, and the hemoglobin was 67 per cent. The sedimentation time was 26 minutes. On May 12 the sedimentation time was 108 minutes, and the leukocyte count was 12,200. The temperature previous to operation was never higher than 99.4 F. At operation on May 13, the uterus, pedunculated fibroids, tubes and ovaries were found to be firmly bound in the pelvis. When the structures were freed preparatory to removal, the appendix was found to be involved in the mass with a small amount of pus around the tip. Discontinuing the operation at this point did not seem to

offer any advantage over removal of the already liberated structures; so supravaginal hysterectomy, bilateral salpingo-oophorectomy, and appendectomy were performed. The pelvis was drained. Death from peritonitis followed on the eighth postoperative day. Had the small appendix abscess been suspected and attacked first, and no attempt made to remove the pelvic organs, this fatality might have been avoided. Certainly this patient would not have been operated upon at all, at this stage, had the surgeon realized the extent and acuteness of the appendiceal involvement.

Case 9. A 37 year old Negro was admitted on September 26, 1934, with uterine fibroids complicated by an old pelvic inflammatory condition. On October 2 a supravaginal hysterectomy with bilateral salpingo-oophorectomy and appendectomy was done under spinal anesthesia. Bleeding on the right side was controlled with difficulty, but apparently completely. The patient's condition was good for the first seven hours after operation, following which she rapidly went into a state of collapse and died three hours later from hemorrhage (autopsy finding). Presumably a return of normal blood pressure after operation started afresh the hemorrhage which had seemed to be under control during the period of low blood pressure incident to the spinal anesthesia.

Case 10. A white woman, aged 43, was admitted on November 8, 1928, with a large fibrotic retroverted uterus and a left ovarian cyst. On November 10 supravaginal hysterectomy, left salpingo-oophorectomy, and appendectomy were performed. After what appeared to be a normal postoperative course for two days, the patient suddenly went into a shock-like condition and died on the third postoperative day. Autopsy was not permitted, and a definite diagnosis was impossible from the symptoms. There was no unusual vomiting, and excellent results were obtained from the enemas. The temperature reached 101 F. only once. The pulse was 110 or below until shortly before death. There was nothing to indicate peritonitis or obstruction. Late secondary hemorrhage was considered as a possibility.

Case 11. A Negro, aged 41 years, was admitted on October 15, 1923, with a diagnosis of fibroids and subacute pelvic inflammatory disease. Following three weeks of preparatory treatment operation was undertaken. The pelvis was found to be filled with fibroids and bilateral tubo-ovarian abscesses. After a very bloody dissection the uterus and both tubo-ovarian masses (unruptured) were removed. The patient died thirty-three hours later of shock and hemorrhage. Obviously the inflammatory condition was too acute and the operation should have been deferred. As it was, a blood transfusion might have saved her had a donor been available. Experiences such as this have impressed upon us the importance of having suitable donors at hand before undertaking extensive operative procedures.

Case 12. A 33 year old white woman was admitted on September 8, 1929, with a bleeding vagina and cervix badly traumatized by an unsuccessful effort to deliver an impacted shoulder presentation at term. A Porro operation was done. Death occurred on the eighteenth postoperative day from sepsis and pyemia. Better obstetrics might have saved this patient, but unfortunately no obstetrician was available.

Case 13. A Negro, aged 24, was admitted on July 8, 1939, pregnant at term. She had been in active labor for the previous three days, with no progress. The membranes had ruptured a few hours after the pains began. Cesarean section was advised by the consulting obstetrician. The uterus was found to be ruptured, with the placenta and dead baby (hydrocephalic) lying free in the abdominal cavity. Beginning peritonitis with the accompanying foul odor was noted. A supravaginal hysterectomy was done, with drainage, followed by the usual treatment for peritonitis, including blood transfusion and sulfanilamide by hypodermoclysis. Death from peritonitis occurred on the ninth postoperative day.

Case 14. A Negro, aged 25 years, was admitted on March 22, 1937. She had been pregnant eight months. There was premature separation of the placenta with considerable bleeding. The patient had active pulmonary tuberculosis. The leukocyte count was 20,500, with 85 per cent polymorphonuclears. The red cell count was 2,360,000, with the hemoglobin 35 per cent. The blood pressure was 75 systolic. After a blood transfusion a cesarean section was done. The placenta was found to be completely detached, and the uterine wall was infiltrated with blood. The uterus failed to contract and continued to bleed, so it was thought best to remove it. The patient died in shock twenty-seven hours after operation.

Case 15. A 46 year old white woman was admitted on June 1, 1938, with fibrotic uterus, grade III cystocele, and lacerated cervix. There were 9,000 leukocytes, with 82 per cent polymorphonuclears. The red cell count was 3,260,000, and the hemoglobin 48 per cent. The urine was negative, and the heart apparently normal. The blood pressure was 120 systolic, 80 diastolic. Following a week of preparation, including blood transfusion, a Mayo vaginal hysterectomy was done. After operation a transfusion of 500 cc. of citrated blood was given. The postoperative temperature curve was septic in type, going as high as 104 F. Large amounts of parenteral fluids (normal saline and glucose) were given. On the sixth postoperative day a transfusion of 500 cc. of citrated blood was given. Following this transfusion failure of the right heart gradually developed. Pitting edema became generalized, the liver became palpable, the blood pressure fell rapidly, anuria ensued, and death resulted on the eighth postoperative day. It was felt that death was due to failure of the right heart "precipitated by the added load of blood transfusion into a circulatory system which had lost its regulatory mechanism because of an edematous state of the tissues secondary to an excess retention of parenterally administered salt solution."

Autopsy showed the operative area to be healed with no adhesion, but a loop of terminal ileum was adherent to an organized blood clot in the cul-de-sac, producing slight partial obstruction. Purulent urine was found in the right kidney pelvis. This finding, added to the fact that the catheterized urine had shown no pus on three occasions, and that there were no other findings before or after death to account for the septic fever, led to the conclusion that the fever was due to the kidney condition. Obviously an involvement of the ureter at the site of the operation must be suspected, though this was not proven at autopsy. Certainly, had the patient's temperature run an ordinary course, the unfortunate train of circumstances culminating in the failure of the right heart would not have ensued. Also, had the kidney condition been suspected, a nephrectomy done before the heart condition developed might have saved the patient.

Case 16. A white woman, aged 49, was admitted on March 30, 1931, with fibroids accompanied by excessive bleeding for the previous six months. Supravaginal hysterectomy was done on March 31, 1931. Intestinal obstruction developed, owing to an adherent loop of ileum. Operation for this was done under spinal anesthesia on April 8. Death came suddenly at the close of operation, apparently from circulatory failure. While this patient's condition was not good, her death at operation was totally unexpected, and the degree of obstruction and accompanying toxemia did not seem to be sufficient to explain the sudden collapse. We have since discontinued the use of spinal anesthesia in similar cases of poor risk.

Case 17. A white woman, aged 46 years, was admitted on June 10, 1934, with a fibroid as large as a full term pregnancy. Supravaginal hysterectomy was done on June 13, 1934. Her convalescence was normal until the tenth postoperative day, when death came suddenly, presumably from acute dilatation of the heart.

Case 18. A Negro, aged 53, was admitted on January 22, 1935, with a multiple fibroid tumor filling the abdomen. She had lost 40 pounds in the previous four months. The leukocyte count was 7,000, with 73 per cent polymorphonuclears. The red cell count was 3,960,000, and the hemoglobin 50 per cent. The urine was negative except for a faint trace of albumin. The blood urea was 20 mg. Following a blood transfusion there were 4,600,000 red cells, and the hemoglobin was 60 per cent. On January 28, supravaginal hysterectomy was done, and a 12½ pound mass of fibroids was removed, one portion of which was found to be sarcomatous. The convalescence was normal for a few days, then the patient developed a definite psychosis; she refused to eat, became toxic, and died on the eighteenth postoperative day. Autopsy showed no peritonitis or obstruction or other gross lesion sufficient to explain death.

Case 19. A 36 year old Negro was admitted on November 26, 1933, with uterine fibroids and old pelvic inflammatory disease. The urine showed a heavy reduction of Fehling's solution, and the fasting blood sugar varied between 125 and 154 mg. Temperature and repeated blood examinations, including sedimentation time, were within normal limits. On December 11, 1933, supravaginal hysterectomy, bilateral salpingectomy, and appendectomy were performed. Death occurred on the fourth postoperative day, apparently precipitated by insulin shock. Autopsy was not permitted.

Case 20. A Negro, aged 42, was admitted on August 17, 1930, with a diagnosis of uterine fibroids and old pelvic inflammatory disease. The leukocyte count was 7,400, with 48 per cent polymorphonuclears. The red cell count was 4,090,000, the hemoglobin 70 per cent. Catheterized urine showed a specific gravity of 1.013, a faint trace of albumin, and numerous pus cells. The blood urea was 47 mg. per 100 cc. The sedimentation time was 36 minutes. On August 20 supravaginal hysterectomy, bilateral salpingo-oophorectomy, and appendectomy were done. Death occurred on the fourth postoperative day from kidney failure.

Autopsy showed no peritonitis or other intraperitoneal involvement to explain death. The right kidney was atrophic, scarred and shriveled. The left kidney showed the pelvis and calices dilated and cortex thinned, owing to partial blockage of the uretero-pelvic junction by a large branched stone.

A correct evaluation of the condition of this patient's kidneys would have shown that operation was contra-indicated, as the pelvic tumor was not causing enough trouble to justify the risk.

Case 21. A 40 year old Negro was admitted on July 16, 1916, with a diagnosis of bleeding fibroids and hemorrhoids. On July 17, supravaginal hysterectomy, appendectomy, and hemorrhoidectomy were performed. At that time it was the practice to keep the bowels from moving for several days after removing hemorrhoids, and this patient was given paregoric every four hours. Progress for the first five days seemed satisfactory, the patient taking a liquid diet nicely. She then began to vomit and became distended. An ileus developed and she died on the night of the sixth postoperative day.

Autopsy showed no peritonitis and no adhesion or other mechanical obstruction. The pelvis was filled with fluid-laden coils of ileum which peristalsis had not been strong enough to empty. Below this point the bowel was collapsed. It was felt that had the patient been turned on her abdomen to permit escape of the fluid trapped in the pelvis, she might have survived. We have since come to feel that it is a bad practice to remove hemorrhoids in conjunction with an abdominal operation, and that the persistent use of a constipating agent following hemorrhoidectomy is unwise, especially in a case of this sort.

Case 22. A Negro, aged 40 years, was admitted on March 23, 1923, with a mass of fibroids extending to the umbilicus. The tumor had been noticed for "more than a year." There had been "indigestion", gas, sour stomach, and at times vomiting for six or seven months, and the patient had reduced her food intake to avoid these symptoms until she had lost much weight and had become very weak. Menstruation had ceased seven months before. At operation on March 27 the pelvis and lower abdomen were found filled with fibroids rather firmly adherent; as the result of an old pelvic inflammation. The pylorus was involved by a tumor mass 4 or 5 cm. in size, free and resectable with no demonstrable distant metastasis. It was thought best to remove the pelvic tumor first, with the idea of resecting the pyloric growth later. The patient vomited rather persistently and finally died on the twenty-seventh postoperative day. Autopsy showed no peritonitis and no intestinal obstruction. The pyloric growth was definitely proven to be carcinoma.

Had this patient's history and symptoms been interpreted properly the stomach condition should have been diagnosed before operation. Certainly fibroids, even when as large as in this instance, rarely give rise to as much gastric distress as this patient complained of. While the risk was poor either way, probably the chances for survival would have been better had the stomach condition been attacked first.

Case 23. A Negro, aged 34, was admitted on June 14, 1927. On June 16 supravaginal hysterectomy and bilateral salpingo-oophorectomy were done for multiple fibroids and extensive old pelvic inflammatory disease with dense adhesions. She had an uneventful convalescence until the eleventh postoperative day, when she was stricken suddenly with chest pain and respiratory difficulty, and died within a few minutes, apparently from pulmonary embolus. Autopsy was not permitted.

Summary

The 23 deaths occurring in a series of 917 hysterectomies have been analyzed with the hope of avoiding or at least decreasing similar fatalities in the future. This analysis shows that, with few exceptions, death was probably due to one or more of several things which possibly might have been avoided. Heading the list is infection in some form,

probably occurring most often as a result of some lapse in technique. Other than infection, death resulted most frequently from inadequacies in pre-operative and postoperative treatment, or from deficiencies in diagnosis of associated conditions. True unavoidable deaths were the exception.

Abstract of Discussion

Dr. G. C. Cooke (Winston-Salem): I have enjoyed Dr. Boice's paper immensely. I think that that is an ideal way to study medicine—to have autopsies reported occasionally in a group like this. There are two points I would like to mention.

One is about puerperal sepsis. I have seen three deaths from peritonitis of an unexplained origin following hysterectomy, in which there was a history of puerperal sepsis as many as four years previously. These three cases impressed me so much that I inquired and found that that has been frequently seen.

Another point is the death from spinal anesthesia during operation for intestinal obstruction. I began using spinal anesthesia about sixteen years ago, and in nearly 4000 cases, I have had 2 deaths. They have both occurred in intestinal obstruction. Of course, both these patients were in a critical condition to start with, but in each case I had preceded the spinal with morphine. Since then I have not used morphine with spinal anesthesia in cases of intestinal obstruction, and the subsequent cases have survived.

Dr. Donnell B. Cobb (Goldsboro): There is very little discussion that one can give on Dr. Boice's paper, except to agree with the sound ideas he has expressed.

I would like to stress one excellent point which he brought out, which probably a great many of us do not observe. That is, to prepare the vagina thoroughly in all cases where a complete or a supravaginal hysterectomy is planned.

According to statistics the supravaginal hysterectomy carries with it a greater risk of pelvic cellulitis in postoperative infection than does the complete hysterectomy. I think it entirely possible that preparing the vagina carefully might reduce that risk.

I think that Dr. Boice and his associates should be commended for being able to do almost a thousand hysterectomies with a mortality of only 2½ per cent.

One point which he brought out may be a little misleading. He reports a 3 per cent mortality in his supravaginal cases and about 1 per cent mortality in his complete hysterectomies. I imagine that Dr. Boice is probably like the rest of us: We do the complete hysterectomies in the patients who are the best risks, and the supravaginal operations where we have a poor risk patient, or where we are running into difficulty. For that reason, the mortality rate is greater there. Of course, the complete operation, as we know, has the advantage of completely removing the cervix and eliminating that as a possible focus of further infection.

It has been my feeling that the end results are just as good, the mortality lower, and the operations much easier, when a thorough conization of the cervix is done—thus removing the infected material—and the supravaginal type of operation is then performed.

Chairman Rose: Is there any further discussion of Dr. Boice's paper? If not, we will ask Dr. Boice to close the discussion.

Dr. Boice: Mr. Chairman, I appreciate the discussion of these gentlemen.

I don't recall definitely whether there was anything in the previous history of any of these patients regarding puerperal sepsis. What we were trying to get at was the most likely cause of death in each individual case—that is, the cause which was present at the time of operation—and the things which I have outlined seemed to be what caused death in these instances.

On the question of spinal anesthesia: Unfortunately, we have had more deaths than Dr. Cooke has has, and they have all been in the very poor risk patients. We have discarded spinal anesthesia for these bad risks.

On the question of the compared mortality between the supravaginal and the complete operation: Of course, it is, as Dr. Cobb says, largely a matter of selection of cases, and of careful preparation. In a number of our cases we have made the mistake of not carrying out a careful pre-operative vaginal preparation.

I recall two recent patients who survived total hysterectomy who would very probably have died had a supravaginal operation been attempted because there was so much infectious material in the cervix. In one case there was a fibroid protruding through the cervix presenting a sloughing, infected area 4 or 5 cm. in diameter. To have attempted a supravaginal hysterectomy certainly would have been disastrous. However, following destruction of the infected slough with the cautery plus a thorough vaginal clean-up a panhysterectomy was carried out successfully.

We have had a number of somewhat similar cases. Whereas, in some of the supravaginal cases that were lost we can see where we might have been successful with a panhysterectomy preceded by proper preparation or suture of the cervix.

PNEUMOCONIOSIS

H. F. EASOM, M. D.

SANATORIUM

Pneumoconiosis is a term used to describe all dust diseases of the lungs. Because of numerous law suits and the enactment of occupational disease laws in many states it has become a subject of ever increasing interest, not only to the medical profession, but also to industry, labor, insurance companies and the legal profession.

It is not a recently discovered disease. We find that as early as the sixteenth century Agricola, a mining engineer, described dust conditions in dry mines and warned that dust "penetrates into the windpipe and eats away the lungs and implants consumption in the body." Later, in 1700, Ramazzini published a comprehensive volume dealing with occupational disease in practically all of the trades and professions known in his day. Of stone workers he says: "They oft times

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suck in by inspiration the sharp and rough cornered particles or splinters that fly off, so that they are usually troubled with a cough and some of them are asthmatic and consumptive." Modern industrial tools and processes which create very high concentrations of dust, and the economic depression which indirectly resulted in numerous law suits for silicosis have caused us in recent years to focus attention on the subject.

There are as many kinds of pneumoconiosis as there are kinds of dust, and many of them have been named to indicate the type of dust responsible. Only two of these, silicosis and asbestosis, caused by inhalation of free silica and asbestos dusts respectively, are known to be clinically important and capable of causing disability. Other dusts, such as granite and pyrophyllite, have been suspected, but in each instance it has been shown that the free silica present caused the silicosis. Gardner suggests that the lung changes caused by dusts which do not contain free silica be classified in a group known as "benign non-specific pneumoconiosis." Examples of this group are siderosis from iron dust, anthracosis from coal dust, and many others. Prolonged inhalation of these so-called inert dusts may result in exaggeration of the linear markings as visualized on an x-ray film, probably as a result of simple accumulation of dust along the lymphatics rather than of fibrosis. At any rate it does not develop to a stage of clinical importance.

It appears therefore that only silicosis and asbestosis merit serious consideration, and of these silicosis is the more important because of the much larger number of workers exposed to silica dust.

Silicosis may be defined as abnormal fibrotic changes in the lungs caused by the inhalation of free silica. When we realize that silica, or quartz, is the most constant constituent of the rocks and minerals that go to make up the earth's crust, it is obvious that those occupations associated with mining of various types, mineral grinding, rock quarrying, stone cutting, tunnel driving, and the manufacture of brick and tile often expose workers to silica dust in harmful amounts. Exposures also occur in many industrial processes such as the manufacture of abrasive soap powder and in the foundry industry. Altogether, it has been estimated that approximately 500,000 persons in the United States are exposed to silicious dust.

Ordinarily silicosis requires many years to develop. Even with very high dust concentrations serious disease seldom occurs in less than two years, and under conditions usually encountered it requires fifteen to thirty years.

Several known factors determine the harmfulness of a dust:

1. Its chemical composition.
2. Its concentration in the atmosphere.
3. The size of the particles.
4. The length of exposure.

Other factors, such as pulmonary infection and individual susceptibility may also play a part.

The importance of chemical composition has already been indicated. Free silica must be present, and, other factors being equal, the silicosis-producing power of a dust increases in proportion to the percentage of free silica it contains.

The concentration of dust particles in the atmosphere about the worker is important. Fortunately, nature has provided us with rather efficient barriers to the entrance of dust into the lungs. The hairs of the nose and the moist mucous membranes of the respiratory tract act as traps, and ciliary action tends to expel particles, so that a normal person may safely breathe low concentrations of harmful dusts for years without ill effects. However, these protective mechanisms are unable to cope with high concentrations for long.

Dust particles, in order to be respirable, must be very small. In fact, only those less than 10 microns in size are considered harmful, and the majority of those reaching the lungs are less than 3 microns. Particles of this size may be created in high concentrations in such operations as sand blasting, rock drilling and stone cutting with pneumatic tools, and fine grinding of minerals; and they remain suspended in the atmosphere for long periods.

The essential feature of silicosis is the production of fibrous tissue. Inhaled dust particles are picked up by phagocytes in the alveoli and taken into the lymphatics which drain toward the hilum. Some are trapped in the small lymphoid deposits along the vessels and bronchi and others reach the tracheobronchial glands. Silica seems to have a poisonous effect on the phagocytes, causing them to die; wherever these dead phagocytes accumulate along the lymphatics the silica stimulates the formation of fibrous tissue in

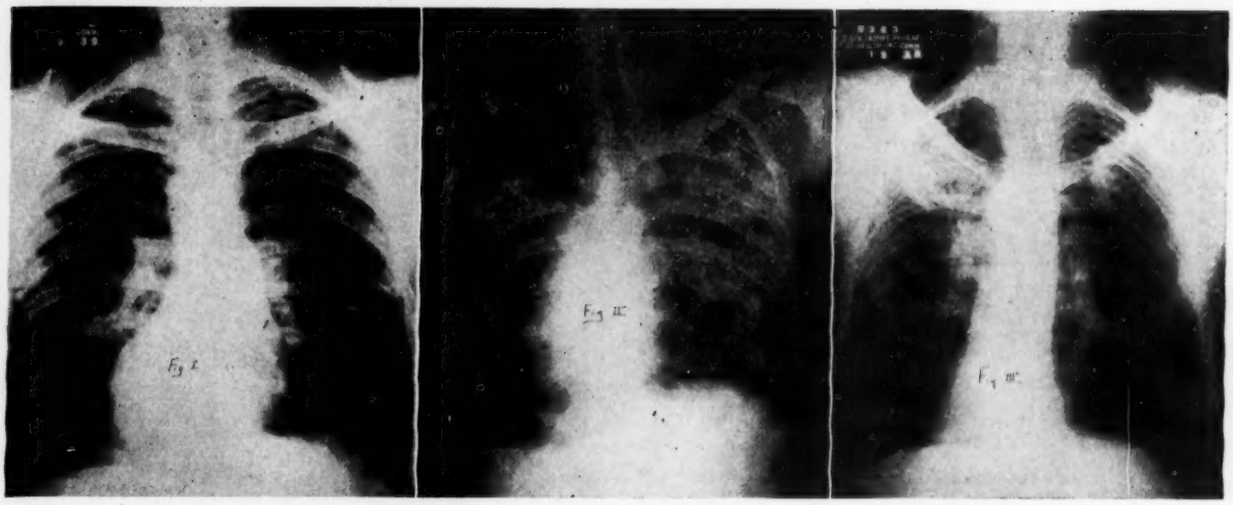

Fig. 1. Simple silicosis (second stage). Notice the symmetrical, discrete nodulation. This patient was a feldspar miner for fifteen years. He had no symptoms.

Fig. 2. Advanced silicosis with spontaneous pneumothorax. This film is that of a colored male, aged 24 years. He worked as a sand blaster in a granite cutting shed approximately six years without any dust control measures. He was exposed to high concentrations of sand and granite dust. The film shows bilateral nodulation, conglomerate shadows, emphysema and a localized area of spontaneous pneumothorax. He died a few weeks after this film was made. Autopsy showed advanced silicosis. No tuberculosis was found.

Fig. 3. Silicosis and tuberculosis. This film is that of a molder in an iron foundry for fifteen years. His symptoms were productive cough and loss of weight and strength. The sputum was positive for tubercle bacilli. He did not respond to sanatorium treatment. Autopsy revealed silicosis and tuberculosis.

the form of concentric whorls known as silicotic nodules. Eventually, if the dust exposure is heavy, there is partial blockage of the lymphatics. Some of the wandering cells enter the parenchyma and cause the formation of nodules there also. Then we have the typical picture of simple silicosis—namely, numerous discrete nodules, symmetrically distributed through both lungs. Fortunately, most cases come under this classification.

There is, however, a second type known as massive conglomerate silicosis. Here we may have massive conglomerate shadows occurring bilaterally and usually on a background of nodulation. As a rule these cases show marked emphysema. The etiology here is not clear, but Gardner states that in about 60 per cent of autopsies in this group he has been able to find evidence of tuberculosis. He feels that, in these cases at least, the massive type of lesion is probably accounted for by the combination of silicosis and tuberculosis. For the remaining 40 per cent he has no satisfactory explanation. In my own experience I have gained the impression that massive lesions occur most frequently among those workers exposed to high concentrations of dust having a high free silica content.

A third group of silicotics comprises those with pulmonary infection. Silicosis seems to favor the development of tuberculosis, which is by far the most frequent and serious complicating infection. Its appearance may range from small coalescing shadows on a background of simple nodulation to massive shadows involving the greater part of both lungs. Usually the development of such lesions is very gradual.

The discrete nodulation of simple silicosis does not cause symptoms, and therefore is usually discovered in routine industrial surveys. The massive type with the emphysema that usually accompanies it may cause disabling dyspnea and cough, but it is not unusual to see workers with such lesions carrying on their usual occupations with only mild symptoms. The third type, silicosis with infection, comprises only a small percentage of the total number of cases of silicosis; but it is the most important, because most of the disability and deaths occur in this group. The course of tuberculosis, the most frequent infection complicating silicosis, is usually chronic, and patients do not exhibit the toxic symptoms that ordinarily accompany uncomplicated tuberculosis. Quite often the only complaints are dyspnea and cough, resulting in a decreased capacity for work. Weakness, loss of weight and fever are frequently late symptoms.

The diagnosis of silicosis requires first of all a history of adequate exposure to silica dust, and secondly, a characteristic x-ray pattern. Both must be present. Physical examination is of little value.

Besides silicosis the other important type of pneumoconiosis is asbestosis, caused by prolonged inhalation of asbestos dust. It is of especial interest in North Carolina because we have approximately 500 persons in the asbestos industry, many of whom have been found to be affected. Asbestos is a fibrous mineral, magnesium silicate, which can be spun and woven into cloth, tape, brake bands and other woven products, or ground and used in paints and paper. It does not contain free silica. Inhalation of this dust over a period of years produces a different type of pathology from that of silicosis. According to Gardner the dust particles are deposited mainly on the walls of the terminal bronchioles, where they stimulate formation of a fibrous cuff. As this contracts, it narrows the lumen and finally prevents air from penetrating into portions of the lung supplied by the bronchiole in question. This eventually results in both atelectasis and emphysema. The x-ray appearance of asbestosis is rather characteristic. Over the middle and lower portions of the lung there is a ground glass appearance, tending finally to obliterate the linear markings. In advanced stages the heart outline often becomes shaggy in appearance and the excursion of the diaphragm limited. Nodulation and conglomerate areas which frequently occur in silicosis are not seen in asbestosis. Also there is no evidence to indicate that asbestosis influences the development or course of tuberculosis in any way. The most distressing symptoms are dyspnea and a rather non-productive cough, and these are usually much more marked than would be expected from the x-ray findings. The average length of exposure required for the development of asbestosis is less than for silicosis. The diagnosis requires a history of adequate exposure and a characteristic x-ray pattern.

The solution of the silicosis and asbestosis problem lies in prevention, because neither disease can be cured. It is chiefly an engineering problem and requires the control of harmful dust by various methods such as exhaust, ventilation, moisture, isolation of dusty operations, good housekeeping, substitution of materials and the use of approved respirators. Medical examinations both before and during employment are desirable to weed out those workers who have tuberculosis or other serious lung conditions which may increase their susceptibility to the effects of dust, and all those who have developed silicosis or asbestosis to a degree which makes it dangerous for them to continue in a dusty atmosphere. In North Carolina such a program has been under way since 1935, when the General Assembly passed the Occupational Disease Act which made silicosis, asbestosis and 23 other occupational diseases and conditions compensable and required both pre-employment and routine medical and x-ray examinations of workers exposed to silicosis dust. Some 10,000 such examinations and re-examinations have been made to date, including the workers in practically all dusty operations in the state employing more than five people. The results of these examinations have made it possible to spot the dangerous jobs, so that now industrial hygiene engineers and industry can work out suitable control measures. It is reasonable to assume that the continuation of such a program will eventually make asbestosis and silicosis very rare diseases.

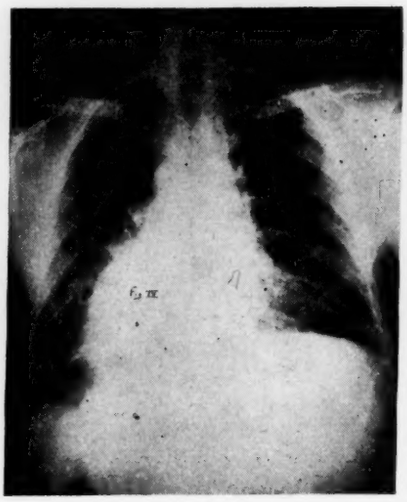

Fig. 4. Advanced asbestosis. This patient worked in the preparation department of an asbestos plant fourteen years. He quit work some time prior to this examination on account of dyspnea and severe, slightly productive cough. The film shows marked fibrosis throughout both lungs and typical shaggy appearance of the heart outline. The case was classified as far advanced asbestosis. The patient died a few months after this film was made.

Abstract of Discussion

Dr. S. B. McPheeters (Goldsboro): Dust has been defined as minute particles of solid matter suspended in air, or liquids, or lying upon the surface of objects. Drinker limits dust to particles, 150 to 1 micron; smaller particles he classifies as fumes and smoke.

The tissue responses to dust are irritation, inflammation, infection, allergic reaction, toxic re-

action and fibrosis. The two most important fibroses have been discussed by Dr. Easom.

When you realize that ordinary street dust may contain as many as a million particles of dust per cubic foot, and that in quiet breathing you breathe about 3000 gallons of air a day, it is obvious that we must have some mechanisms to protect us from dust. Dr. Easom has referred to those mechanisms which prevent its ingress. Those mechanisms are said to take care of about 50 per cent of ordinary dust. Other dust must be disposed of by the mechanisms of disposal, and in this process the phagocytes play the leading roles.

These phagocytes pick up particles of 10 microns or less, enter the lymphatics, which open on the respiratory bronchia, and come to rest first in the tracheobronchial lymph nodes and then subsequently in the intrapulmonary lymph nodes and accumulations of lymphoid tissue, proceeding from the hilus to the periphery.

All dust except silica, according to Gardner, produces an increase of connective tissue. Silica, as Dr. Easom has mentioned, produces a particular tissue response. This increase—this perilymphatic increase—merely increases the framework of the lungs. This is the preliminary response to all dust; there is no clinical result from this, however it may be caused.

The weight of public opinion, as far as I am conversant with it—and as summarized by Gardner—is in accord with the statement made by Dr. Easom to the effect that asbestosis is neither significantly progressive after cessation of exposure, nor does it greatly increase the susceptibility to tuberculosis. Silicosis is progressive, but persons rarely die from silicosis.

In the South African statistics, 75 per cent of silicotics die from tuberculosis. It is said that silica does not increase the susceptibility to pneumococcus pneumonia. Pneumonias which cause death in silicotics are bronchial pneumonias.

I am sure that we are all proud of the work that North Carolina is doing in the control of these two diseases, and we welcome such contributions as Dr. Easom's to the general knowledge of those two important diseases.

Dr. P. P. McCain (Sanatorium): After Dr. Easom's paper and Dr. McPheeters' discussion, I don't think the subject needs any further elucidation; however, I would like to give testimony to the splendid work Dr. Easom has done in establishing and organizing the Industrial Hygiene Department of the State Board of Health. He has been largely responsible for this himself, and he has put the North Carolina Department of Industrial Hygiene on such a splendid basis that it has become somewhat of a model. Quite a number of the other state heads have been coming to North Carolina and they are modeling their organizations and their work after the North Carolina Industrial Hygiene Department.

In a survey of conditions in 17 cement plants located in various parts of the United States, it was found that the incidence of tuberculosis and other chronic infections of the lungs was less among the employees than in the general population. The manifestations of tuberculosis occurred in typical form and at the same age periods as in persons not exposed to dust by occupation. It was concluded that prolonged inhalation of cement has no unfavorable influence upon susceptibility to tuberculosis infection or upon its subsequent evolution. Leroy U. Gardner, M.D., Jour. of Industrial Hyg. and Toxicology, Sept. 1939.

PROLONGED OCCLUSION IN LATENT PHORIAS

F. O. Fay, M. D.

Norfolk, Va.

Heterophoria is a term for the various forms of deviation tendencies which may occur in ocular motility. It is essentially different from heterotropia in that these tendencies are overcome during the process of binocular vision, and manifest squint does not appear. A phoria becomes a tropia when the individual is no longer able to hold the visual axes in alignment. The effort expended in holding the deviation in control may give rise to symptoms of discomfort and blurred vision. A latent phoria is one which does not become apparent with the usual methods of examination.

In 1897 Dr. F. W. Marlow[1], noting the occurrence of a diplopia which had not previously existed, after the occlusion of a patient's eye for a week, thought that this might be an additional way of bringing out latent deviations. His theory was that the disturbance of fusion in occluding one eye might be sufficient to relax the spasm induced by the effort to retain binocular fixation. He proceeded with this as a test, and found in many instances[2] that he could diagnose a condition otherwise undiscoverable, treatment of which would give relief from the symptoms. Later[3] he advocated the occlusion of the second eye if occlusion of the first did not show conclusive findings, and reported over 2,000 cases. He also felt that prolonged occlusion showed beyond any doubt that, owing to the variance in duction findings, there was no constant relation between the preocclusion adduction and the amount of exophoria actually present.

There has been considerable adverse criticism of his test, some of it undoubtedly arising from its inaccurate application. Abrahams[4] cited the natural tendency for the covered eye to turn up (Bell's phenomenon) and suggested that a vertical phoria would develop in most normal persons. Wendell

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Read before the Section on Ophthalmology and Otolaryngology, Medical Society of the State of North Carolina, Pinehurst, May 14, 1940.

1. Marlow, F. W., in Ophth. Rec. 6:116 (March) 1897.
2. Marlow, F. W., in N. Y. State J. Med. 15:429 (November) 1915; N. Y. M. J. 108:936 (November) 1918.
3. Marlow, F. W., in Arch. Ophth. 16:6 (December)
4. Abrahams, S. V., in Am. J. Ophth. 14:656 (July) 1931.

L. Hughes[5], in a series of 10 cases, thought that 3 of them gave evidence of this. In some cases the occlusion of one eye results in findings of no value. On the other hand Bielschowsky[6], in his lectures on motor anomalies, speaks approvingly of it. Hughes[5] found that it was of considerable aid in the diagnosis of latent phorias in 6 of the 10 cases referred to above. Hermann M. Burian[7] stated that Marlow's test was most valuable in certain cases in determining the position of rest. He commented on the great variability of measurements in phorias, and quoted Gualdi, who in 1932 investigated persistent convergence with accommodation after one eye had been enucleated. The latter found that this persisted sometimes over a year after the enucleation.

The indication for the prolonged occlusion test is the inability to relieve asthenopic symptoms by careful refraction and correction of manifest heterophorias. I usually do two or more refractions under adequate cycloplegia prior to its application, in order to be as certain as possible that the discomfort is not due to the refractive error. The most prominent symptom has been headache.

An opaque patch is placed over the nondominant eye, and kept there day and night, preferably for at least ten days. If it is removed for any purpose the patient keeps the eye closed. The occlusion is not removed until the patient is seated behind the phorometer. After the determination of the phorias, appropriate temporary prisms are ordered, either in clip-overs or in frames. More attention is paid to the vertical imbalance than to the lateral. The strength of the correction may be varied after a week's trial.

Report of Cases

Case 1. R. D. L., aged 29, complained of vertigo and nervousness. This was more or less constant, and was accentuated by use of his eyes. A moderate hyperopic astigmatism was corrected. There was 5 prism diopter exophoria at twenty feet, and a 12 prism diopter near, with weak adductive power, indicating a divergence excess. Adduction exercises were given until the adductive power was above normal. The symptoms persisted. One eye was occluded for twelve days, during which time he was symptom free. Then there was found an exophoria of 12 prism diopters for distance, and 23 for near. He had a 6 prism diopter vertical imbalance for distance and near. After trying several corrections, a 4 prism diopter base in and 2 prism diopter vertical correction was ordered. This gave considerable relief, but he still had some vertigo. In light of subsequent cases, I believe he should have had fuller correction of the imbalance.

Case 2. S. M., aged 30, had severe headaches, which were worse after reading or sewing. The only manifest finding, after correction of the refractive errors, was an exophoria of 12 prism diopters for near. After occlusion there was an exophoria of 14 prism diopters for near, with no vertical imbalance. There was no attenuation of her symptoms during the test. The results were not conclusive. Her opposite eye should have been occluded, but this was refused.

Case 3. T. M. B., aged 27, had frontal headaches for several years. Correction of a moderate compound myopic astigmatism gave no relief. Her manifest muscle balance tests showed a questionable vertical imbalance for near. Three years later, during a twelve day period of occlusion, her headaches left. One prism diopter of vertical imbalance was corrected, with considerable relief.

Case 4. D. M., aged 29, had had headaches for several years, which came as severe attacks, with a constant dull pain during the period between. The right side of her head was affected every time, and the pain started over her right eye. The pain was so severe that morphine was necessary, and a general practitioner had given her chloroform in an attempt to ease it. She had become psychotic, and spent two weeks in an institution. Upon refraction, a small compound hyperopic astigmatic error was found. She had an exophoria of 14 prism diopters for near. I had no idea that these symptoms could be coming from her eyes, but as a last resort, I suggested occluding one eye. Several days later she drove sixty miles to thank me for the first complete relief that she had had from headache in a number of years. The findings after occlusion were an exophoria of 14 prism diopters for distance, 30 for near, and a 10 prism diopter vertical imbalance. Six prism diopters of this vertical imbalance was corrected, with practically complete relief over a period of two years.

5. Hughes, W. L., in Arch. Ophth. 11:2 (February) 1934.
6. Bielschowsky, A., in Am. J. Ophth. 8, 21:10.
7. Burian, Hermann M. Personal communication to the author.

Then, during a pregnancy, she found that she could get along very well without the prisms at times without a return of the headaches.

Case 5. E. R., aged 20, complained of her eyes hurting and headache after use of her eyes. A moderate hyperopic astigmatic error was corrected, with no relief from her symptoms. She had an exophoria of 3 prism diopters for near. During the time that one eye was occluded there was no relief of her symptoms. After occlusion there was an exophoria of 5 prism diopters for distance, 10 for near, with a 4 prism diopter vertical imbalance. Varying prism corrections did not relieve her headache. She was found to have some thyroid disturbance. The vertical imbalance here was probably Bell's phenomenon.

Case 6. G. M., aged 40, had headaches for several years, which she thought were worse with use of her eyes. There was nothing in her refraction to cause them. She had an exophoria of 11 prism diopters for near. After occlusion for ten days, she had an exophoria of 6 prism diopters for distance, 14 for near. There was 1 prism diopter vertical imbalance. Her headaches were not relieved during the period of occlusion. Unless this was a case of aniseikonia, I do not feel that her eyes were at fault.

Case 7. C. H., aged 47, had a headache that suggested sinusitis, coming on when she awakened, and getting better during the day. She had no sinusitis. She was hyperopic, with a presbyopic addition. Her blood pressure had been elevated. She had an exophoria of 16 prism diopters for near. After occlusion she had an exophoria of 3 prism diopters for distance, 22 for near, with a 2 prism diopter vertical imbalance. With correction of half of this vertical imbalance added to her original correction, her headaches disappeared.

Case 8. N. C. M., aged 36, had occasional sick headaches, sometimes involving only half of her head. There was a moderate compound hyperopic astigmatism, and an exophoria of 11 prism diopters for near. Her headaches continued after glasses were given. After occlusion, she had an exophoria of 6 prism diopters for distance, 22 for near, with no vertical imbalance. Adduction exercises were given with partial relief. A persistence in them might have afforded better results.

Case 9. E. C., aged 35, had severe headaches for several years, made worse by using her eyes. Neither her refraction or muscle balance gave any clue to the cause. During the period of occlusion, her headaches were less frequent and less severe. She had an exophoria of 2 prism diopters for distance, 16 for near, with a vertical imbalance of 4 prism diopters for distance and 3 for near. Various prismatic corrections gave only partial relief. She was referred to Dr. Emory Hill, who felt that she had much more vertical imbalance than was apparent, even after occlusion. While under observation, she became psychotic, and was sent to an institution. This represents to me one of those complicated cases, where undoubtedly several factors worked together to produce her symptoms.

Case 10. J. W., aged 23, had dull frontooccipital headaches, not related to the use of her eyes. Her refraction and manifest muscle balance were within normal limits. After occlusion, she had an exophoria of 4 prism diopters for distance, 16 for near, and a 5 prism diopter vertical imbalance. Correction of 3 prism diopters of the vertical imbalance gave her considerable relief. Her headaches were better during the period her eye was occluded.

Case 11. F. L. T., aged 28, had had frontooccipital headaches for years. One eye was corrected with a strong hyperopic cylinder, the other with a mixed astigmatic correction. Her muscle balance was normal. After several refractions, which did not vary, one eye was occluded, after which she had a 4 prism diopter exophoria for distance, 18 for near, and 4 prism diopters of vertical imbalance. Correction of the vertical deviation with varying strengths of prisms did not give relief. Her eyes did not pain her during the period of occlusion, but her headaches continued. She was under observation for over a year. This was probably a case of aniseikonia.

Case 12. O. H. B., aged 26, had had headaches all her life. Her refractive error could not have accounted for it. Her muscle balance was normal. During the period of occlusion, there was no change in her symptoms. Her latent phorias were 5 prism diopters for distance, 18 for near, with 1 prism diopter vertical phoria. Prisms did not help. Perhaps if her opposite eye had

been occluded, the findings might have given some clue to the etiology of her symptoms.

Case 13. L. H., aged 39, had a parietal headache, which was made worse by sewing. She was moderately hyperopic, but correction of this gave no relief. Her muscle balance was normal. During the time of occlusion of one eye, her headaches disappeared. She had after this an exophoria of 8 prism diopters for distance, 18 for near, with 7 prism diopters of vertical imbalance. A 4 prism diopter correction of this vertical imbalance helped her considerably.

Case 14. T. E. C., aged 30, had had headaches for a year, unassociated with the use of her eyes. She was slightly hyperopic, with 1 prism diopter of vertical imbalance. Occlusion was done, during which time her headaches were better. A hyperphoria of 3 prism diopters for distance and 2 for near developed, with an exophoria of 16 prism diopters for near. A 1 prism diopter correction of the vertical imbalance helped some. This was another case in which it would have been wise to occlude the other eye.

Case 15. W. D. C., aged 29, had had headaches frequently for several years, but particularly after attending the movies. A compound hyperopic correction did not help. Her muscle balance was normal. She was firmly convinced that her eyes were causing her headaches. After occlusion, she had an exophoria of 14 prism diopters for near. It was felt that her headaches were not due to any latent phoria, and further general medical study was advised.

Case 16. E. B., aged 27, had headaches and photophobia, with a feeling of enlargement of her left eye. She was slightly hyperopic, and had 1 prism diopter of left hyperphoria. With the thought that this might indicate further muscle trouble, occlusion was done. Afterwards, she had an exophoria of 6 prism diopters for distance, 30 for near, and a 3½ prism diopter right hyperphoric imbalance. She was better without any vertical correction. Her near point of convergence was 10 cm. before occlusion. Adduction exercises are being used. If her symptoms continue, the other eye will be occluded.

Case 17. L. D. M., aged 34, had had fronto-occipital headaches for several years. She was wearing a marked over-correction for her moderate compound hyperopic astigmatic error. The proper lenses did not help her headache. She had a manifest exophoria of 16 prism diopters for near. After occlusion, she had an exophoria of 16 prism diopters for distance, 30 for near, and a 7 prism diopter vertical imbalance. Correcting 3 prism diopters of her vertical imbalance gave her definite relief, and she can go to the movies without headache. No permanent correction has been given yet, as it is thought that her exophoria should be investigated further.

Summary

Case histories of 17 patients having symptoms that might be due to eye trouble showed that the majority of them had latent phorias that became manifest after prolonged occlusion. Several patients were relieved by correction of such phorias.

Abstract of Discussion

Dr. V. M. Hicks (Raleigh): I want to congratulate Dr. Fay upon this very practical paper. Dr. Fay's paper deals with matters that require about 90 per cent of the time of the ophthalmologist—the process of examination and refraction.

The question of phorias does constantly escape our attention in refraction, and as has been pointed out by Dr. Fay, it is a very important thing in many cases. We should give these patients enough time, by repeated examinations, to satisfy our minds that we are dealing with a muscular imbalance, and we should let the patient have a general survey by our medical confreres before we finally decide what we are dealing with. These patients are highly cooperative as long as you show interest in them. Too frequently we do not even use the Maddox rod test in doing an ordinary refraction. Very frequently a manifest hyperphoria shows up in a case which has previously been refracted, and if you will quiz the patient you will find that he never had a Maddox rod test done before.

There is one point that I would like to make in this question of latent hyperphoria: That if, when you suddenly remove the cover from the one eye the patient is a little slow in saying that the vision is better, you can suspect, I think, that you might be dealing with a phoria.

In most cases, when the shade is removed from the one eye, they will promptly say, "That is much better." I don't believe I have ever found a latent phoria where the patient responded with that statement. They are a little bit slow in fusing.

I have found, in cases of muscular imbalance, particularly among women, that anemia is a very common condition, and that until it is relieved, they are going to have muscular imbalance, just as they have muscular trouble, if they undertake to walk two miles a day, with their leg muscles.

Many patients who respond to suggestion will be very much better for a while if you give them prisms, but if you will check them over after a period of six or eight months, or a year, you will find they are having trouble again.

I think Dr. Fay's occlusion period of eight or ten days for latent phorias is highly practical, and I do not remember that it has been brought to the attention of the Society before.

Chairman Kerns: Is there any further discussion? If not, I will ask Dr. Fay to close.

Dr. Fay: The point Dr. Hicks has made about reduced vision in the presence of latent phorias is very true. It is an excellent quick test to determine whether there is any phoria.

Ordinarily, binocular vision is superior to monocular vision even in cases where vision is much better in one eye than in the other. However, in the presence of phorias you almost always notice this reduction in visual acuity when you remove the cover and the patient looks with both eyes.

Along with anemia, there are various endocrine disturbances which may affect vision. You probably noticed that 16 out of these 17 patients were women. Undoubtedly some of these patients had anemia. I had most of them studied medically and neurologically before I put them to this prolonged occlusion test.

You do have to watch carefully the idea of suggestion, which, I believe, accounts for probably 50 per cent of the beneficial results with that iseikonic lens.

All of my cases, with the exception of the last two, have been under observation for periods of from two to five years, and most of them are holding up all right. I don't give prismatic correction until I have tested them and found the most beneficial correction.

FULL TERM INTRA-ABDOMINAL PREGNANCY

Report of a Case

R. A. WHITE, M. D.

ASHEVILLE

Full term extra-uterine pregnancy is extremely rare. According to Bland[1] from 1813 to 1907 there were 240 cases of full term extra-uterine pregnancies with live fetuses reported, with a maternal mortality of 34.7 per cent. From 1907 to 1923 there were reported 61 additional cases with a maternal mortality of 16.7 per cent. Since 1923 he has found 20 others recorded, making a total of 321. Bland further states that "if the child should be delivered alive nature seems to have exerted her utmost to effect its destruction, for only a small number live. A healthy living child is very seldom found . . . in more than 60 per cent it is seriously deformed, the deformity involving the skull, the brain, the spinal column, the cord, the extremities or the viscera."

Hellman and Simon[2] made an exhaustive study of the literature from 1809 to 1935, and were able to collect 311 cases of intra-abdominal pregnancy continuing beyond the twenty-second week. To this list they added 5 cases reported for the first time, making a total of 316 cases. Of the 316 cases studied by them 158 fetuses lived—that is, survived eight days or longer. Of the 316 mothers, 212 lived, 101 died, and the outcome of 3 cases is unknown. In the whole series there were only 80 cases in which both mother and child survived.

The purpose of this paper is to report in detail a case in which the mother and baby are alive and well after six weeks.

Case Report

B. B., a colored woman aged 30, was admitted by ambulance to Mission Hospital and assigned to the surgical service of Dr. W. P. H., at 6 p.m. on October 24, 1939. Her complaints at this time were: (1) pain in the lower abdomen since July, a period of four months; (2) an increasing enlargement of the abdomen; (3) amenorrhea since May, 1939, except for one period in August, the nature and duration of which could not be determined.

Nothing could be learned of her family history or marital history. She stated that her menses began at 13 years, were regular every twenty-eight days, lasting four to seven days, and were never profuse or painful. She had had two miscarriages—one in 1937 at about the third month of gestation, another in 1938 at about the fourth month. She had had no trouble with either. Nothing further could be learned of her past history.

Examination: "Nothing of particular interest could be found on general physical or neurologic examinations. The temperature was 99, pulse 96, respirations 20. The teeth were in poor condition, many missing and many decayed. The thyroid was slightly enlarged. Lungs and heart showed nothing abnormal. The extremities were normal. The blood pressure was 110 systolic, 70 diastolic. There was no tenderness and no masses in the upper part of the abdomen. In the lower part was a symmetrical ovoid mass extending to the umbilicus. The fetal outline was easily felt, and the fetal heart tones were easily audible; the position seemed to be transverse, and near the surface. Pelvic examination revealed a soft, tightly closed cervix, and a small amount of mucopurulent discharge. There was a mass continuous with the cervix and apparently with the abdominal mass which was the size

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Read before the Section on Gynecology and Obstetrics, Medical Society of the State of North Carolina, Pinehurst, May 15, 1940.

1. Bland, P. Brooke: Practical Obstetrics for Students and Practitioners, p. 288-289.

2. Hellman, Alfred M., and Simon, J. Herbert: Full Term Intra-Abdominal Pregnancy, Am. J. Surg., New Series 29: 403, 1935.

and shape of a pear. Ectopic pregnancy is suspected."

Laboratory findings. The urine was amber, cloudy, and acid, with a faint trace of albumin and sugar; there were many leukocytes and a few bacteria, and a 2 plus reaction for acetone. A blood count showed erythrocytes 3,870,000, and leukocytes 14,300, with polymorphonuclears 78 per cent, lymphocytes 18 per cent, mononuclears 3 per cent, and basophils 1 per cent. The hemoglobin was 65 per cent. The Wassermann reaction was negative; the Kline was 3 plus. An x-ray of the abdomen (fig. 1) showed a fetus at about the fourth month of gestation, lying on the left, with the head at the level of the third and fourth lumbar vertebrae, the breech down. The comment was: "Fetal ossification is rather light. This may not be significant. High position on left is probably significant and suggests ectopic pregnancy."

(These reports were not seen by us until after operation.)

During her stay in the hospital the patient was given a full diet with plenty of fruit juices, a mild sedative (codeine gr. ½ being sufficient to control pain), and bed rest. I saw her in consultation on November 1. While I considered strongly the possibility of ectopic pregnancy I decided against it, because of the symmetry and central location of the abdominal mass, and the relatively little pain. The pelvic tumor impressed me as being either a uterine fibroid or an ovarian cyst. I suggested some luteinizing hormone. She was given three injections of antuitrin S, and left the hospital "improved" on November 2, 1939.

She was not seen by any of us again until February 6, 1940, when she came to the city prenatal clinic and was seen by Dr. E. Brownsberger, who made the following report: "She is very thin and sick looking, and complains of feeling poorly and has a 'misery' in her side when she stands on her feet. She has no bleeding or vaginal discharge and complains only of weakness and abdominal pain. She says she weighs less now than when she was sick in October. She is constipated and has urinary frequency. Examination: Temperature 98.2, pulse 100, blood pressure 100/70. No urine specimen obtained. Blood showed Kolmer, 4 +, Kline 3 +. Abdomen enlarged to what appears to be near term. Fetal heart heard in upper left quadrant, rate 160."

On her second visit to the clinic on February 12 her temperature was 98; pulse 100; blood pressure 115 systolic, 70 diastolic. The urine was turbid, straw colored, and acid; the specific gravity was 1.025, with a heavy trace of albumin and many pus cells. The presence or absence of pain is not mentioned.

On February 27 her temperature was 98, pulse 82. The blood pressure was 105 systolic, 80 diastolic. The fetal heart rate was 140, regular and strong in the upper right quadrant. "There is a hard mass which may be the fetal head lying directly below the umbilicus. It seems larger than normal for the size of the fetus. The small parts are distinguished on the right. There is nothing in the fundus or over the inlet which could be the fetal head. The fetal ovoid is longitudinal. Vaginal examination was not done, as she seems near term."

On March 1, three days later, she was brought to my office for examination, and she was seen again at the clinic by Dr. Brownsberger, little or no change having taken place since February 27. Pain seemed to be the only complaint, but at no time was it so severe as to require sedatives.

On March 16 she was brought to my office again. Let it be remembered that her last regular menstrual period was in May, making her due in February; that on October 25 the fetal outline could be palpated, movements were felt subjectively and objectively, the heart tones were audible, and Dr. MacRae estimated from the x-ray examination that the patient was six months pregnant.

She was able to be up and about the house, to come to the office in an automobile with the social worker, to get on and off the examining table without difficulty, to dress and undress herself. She did not seem to be in any especial pain. She was cheerful and smiling. Her temperature was 98.2; pulse 92; weight 117; and blood pressure 130 systolic and 80 diastolic. The abdomen was a most peculiar shape, a sort of "double decker" with the upper story the larger and in it a live and active fetus. The wall was thin; the heart beats were 148, heard just to left of the midline, above the umbilicus. The head, which seemed abnormally large, was literally in the middle of the abdomen. The body and small parts seemed intermingled in the upper abdomen. The lower abdomen was filled with an ill defined mass, a sort of pedestal. I suspected a distended bladder, but on catheterization there was no

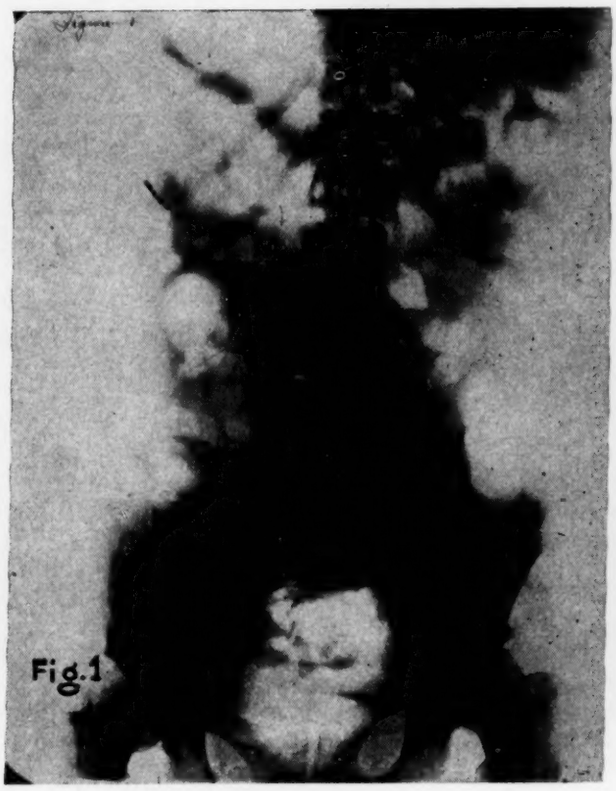

Fig. 1. X-ray of the abdomen, showing the fetus lying on the left.

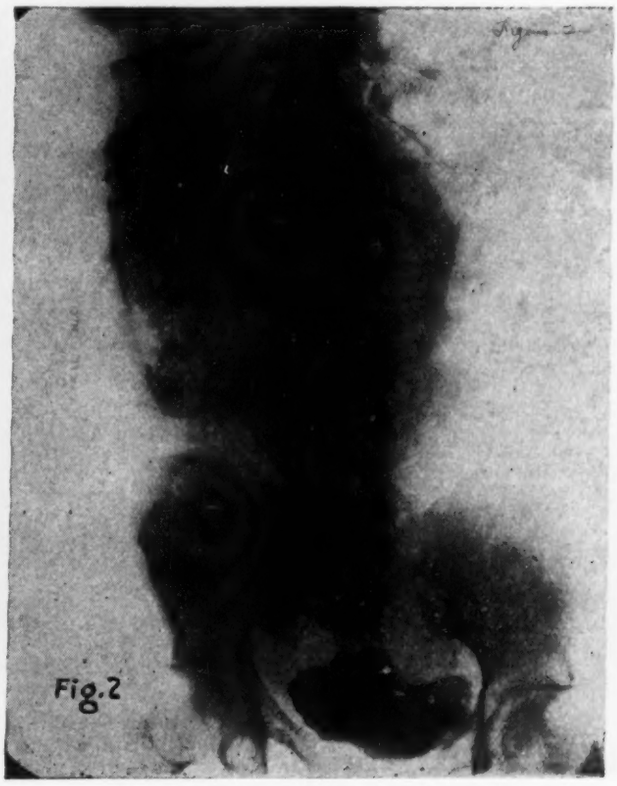

Fig. 2. Cystogram done two days before operation.

residual urine and the mass was not changed in size or shape.

Pelvic examination. The vagina was normal in size and shape (nonparous), and there was a small amount of mucous discharge. The cervix could just be reached, and was large and soft and closed. There was a firm, rounded mass to the left of the midline the size of an orange, pear shaped, and continuous with the softer poorly defined pedestal which filled the false pelvis and the space between the symphysis and the fetal head. The center of the fetal head was marked by the umbilicus. My impressions were: (1) extra-uterine pregnancy; (2) placenta previa with large uterine fibroid or ovarian cyst. She was sent from my office to the hospital. A cystogram (fig. 2) was done the same day, with the following report: "Single, small fetus. Head very high with back to right and marked flexion. Pelvis very small. A large mass interposed between head and bladder. Type of tumor undetermined."

On the following day, March 17, Dr. H. S. Clark on surgical service was called in consultation and made the following notation: "From the size of the pelvis and the large uterine tumor, I believe normal delivery would be next to impossible. Porro operation would seem the most logical procedure."

The operation was performed on March 18 by Dr. Clark and myself. Cyclopropane and ether were used as the anesthetic. A long left paramedian incision was made. The structures beneath the peritoneum were so confusing that the abdomen was finally entered above the level of the umbilicus. Immediately beneath this point was the fetal head covered only by the amniotic sac, with the body and limbs filling the upper right abdomen. There was a very small quantity of fluid, turbid and brownish in color. The sac was ruptured and the baby delivered. The placenta was found to be attached by a pedicle to the right broad ligament and the anterior parietal peritoneum, and adherent to the anterior surface of the uterus. There was also an apron of omentum containing large vessels attached to the placenta. The placenta itself was entirely enclosed in a membrane. There was apparently no villous attachment to any maternal tissue.

The placenta was dissected free from its various attachments, which were ligated with chromic catgut and divided. There was very little bleeding. The uterus was found to be two or three times its normal size and

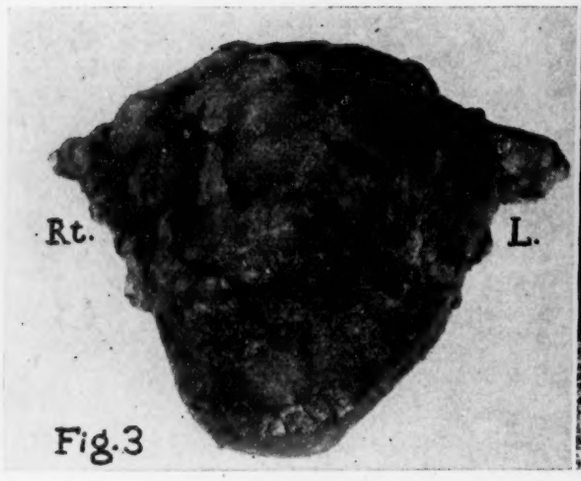

Fig. 3. The uterus. (U. S. Army Medical Museum, Neg. No. 69774).

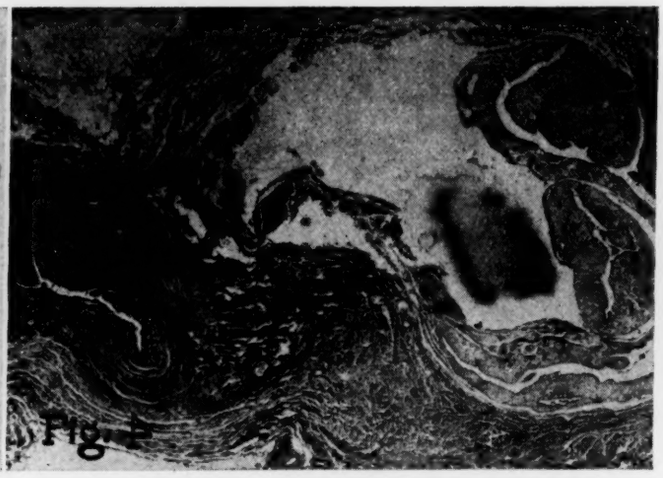

Fig. 4. Section from the right tube. (U. S. Army Medical Museum, Neg. No. 69863).

studded with small liomyomata. The right tube was normal in appearance, the ovary greatly enlarged. This ovary was horse-shoe shaped and had the appearance of a ruptured cyst. The left ovary was normal, the tube edematous and cystic. The uterus was clamped off and removed supracervically; the stumps of the ligaments were anchored into the cervix, and the raw surfaces covered with peritoneum. The appendix was removed prophylactically, and the abdomen closed without drainage.

During the operation the anesthetist gave ephedrine once. No other stimulant was used. The patient left the table in good condition. She was given 1000 cc. of 10 per cent glucose in saline immediately after operation and on the following morning. There was no other special medication.

On the third postoperative day, she had a rise in temperature to 102 F. This was coincident with the breast engorgement and came down rapidly. There was no other rise of temperature above 100.2 throughout her stay in the hospital. The wound was dressed on the tenth postoperative day. There were two small stitch abscesses. The stitches were removed. The patient was up in a chair on the fourteenth day, and was discharged on the seventeenth day in good condition.

She reported at my office four weeks after operation. The wound was clean and well healed. There was a very slight mucosanguineous vaginal discharge. The cervix was clean. There was no pelvic induration. Her general condition was good.

Histopathologic Report

The placenta is roughly spherical, and the maternal surface is covered by a thin, grayish white membrane with tags of fat containing large blood vessels attached. There are numerous large infarcts in the placenta both on the maternal and fetal surfaces. The fetal membranes are thickened and edematous. The cord is large and inserted at the margin. The uterus (fig. 3) is enlarged to approximately 7.5 cm. in length and 7 cm. in width at the fundus, and there is a supracervical fibroid 2.3 cm. in diameter with several smaller fibroids in the wall. The myometrium is hypertrophied. The endometrium is thickened. The left tube is cystic and dilated at the uterine end, and the cysts are filled with coagulated fluid. The right tube is small. Both have been amputated near the uterus.

Microscopic: A section from the uterus shows some hypertrophy of the muscle fibers and edema of interstitial tissue. There are numerous blood vessels with some thickening of their walls. The endometrium shows a marked decidual reaction, with only an occasional slightly dilated gland in the basal portion. There are numerous large blood vessels and patches of granular leukocytes, particularly in the basal portion and in the adjacent myometrium. A small fibroid is composed of interlacing bundles of spindle shaped cells.

A section from the left cystic stump shows the cysts to have thin fibrous walls with low cuboidal lining cells. The cysts are filled with serum, which contains many large foamy cells. The tube wall is edematous and congested, with occasional papillary folds projecting into the cyst lumina. These folds are covered with a single row of low

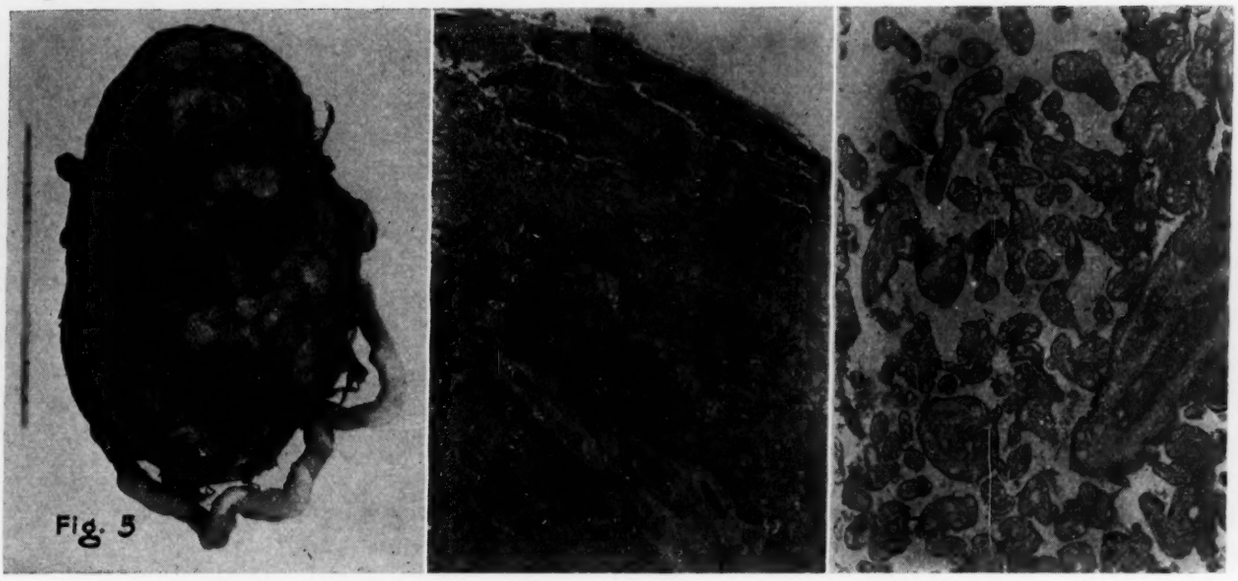

Fig. 5. The maternal surface of the placenta. (U. S. Army Medical Museum, Neg. No. 69777).

Fig. 6. Section from the maternal surface of the placenta (U. S. Army Medical Museum, Neg. No. 69865).

Fig. 7. Section from the maternal surface of the placenta, highly magnified. (U. S. Army Medical Museum, Neg. No. 69864).

columnar or cuboidal cells which show no cilia. In the wall and the papillary folds, and beneath the peritoneal covering are nests of decidua-like cells. In the wall there are a few chronic inflammatory cells.

A section from the small right tube (fig. 4) shows edema and congestion of the wall with a thick walled vessel and the mucosal folds showing a marked decidual cell reaction. The lining cells are low cuboidal and show no cilia. The serosal covering is edematous, and there are scattered collections of decidual cells beneath the swollen mesenchymal cells of the serosa. Many of these are definitely in the adventitia of blood vessels.

Sections from the maternal surface of the placenta (figs. 5, 6, and 7) show a large anemic infarct and a small hemorrhagic infarct. The surface is covered with a membrane which shows no characteristic histological structure. The chorionic villi are small, well developed and contain thin-walled blood vessels.

Sections from fat tags attached to the maternal surface of the placenta (fig. 8) contain numerous blood vessels, some of which are large and thick walled. There are small collections of round cells about some of the smaller vessels. There are also scattered small collections of decidua-like cells in the connective tissue and about some of the smaller vessels. These vessels probably form the chief blood supply to the placenta.

Note: The decidual reaction in the right tube would suggest a primary tubal pregnancy which terminated in one of two ways: (1) Rupture between the layers of the broad ligaments and continued development into the broad ligament and abdominal cavity. This would account for the covering over of the maternal surface of the placenta. (2) Incomplete tubal abortion through the fimbriated end of the tube, the placenta retaining part of its blood supply from the tube and becoming secondarily attached to other abdominal viscera.

Histopathologic Diagnosis

Tubal pregnancy with secondary abdominal pregnancy developing to term.

Hypertrophy of uterus, due to pregnancy.

Decidual reaction of endometrium, right tube; serosal surface, both tubes.

Hydrosalpinx, chronic left.

Liomyoma of the uterus.

The Baby

While the baby appeared rather small for a full term infant and weighed less than 5 pounds he was well developed, and, therefore, probably immature rather than premature.

The head was of normal shape and size, and did not show any effect of molding. The anterior fontanelle was of normal size and shape. The posterior fontanelle was rather large.

Fig. 8. Section of fat tag attached to the maternal surface of the placenta. (U. S. Army Medical Museum, Neg. No. 69868).

The eyes, ears, nose and throat were normal.

The palatine arch was a little high.

There was a slight deformity of the thorax, of the pigeon breast type. However, the heart and lungs showed no abnormalities.

The abdomen was soft and not distended. The liver and spleen were of normal size. The umbilical stump appeared normal.

The only peculiarity revealed by the examination was that the vernix caseosa was entirely wanting, and in its stead nature had supplied an extra covering of epidermis, which was desqaumated within a few hours after the baby was born.

The baby took its food fairly well from birth, and on April 22, 1940, weighed 6¼ pounds. The slight chest deformity had practically disappeared, and the baby appeared to be normal in every respect.

Abstract of Discussion

Dr. Oren Moore (Charlotte): I think the most remarkable thing was the size of the baby, that it weighed five pounds.

Potter described three cases in which he made the diagnosis and operated, with a safe delivery.

I saw one case of ectopic pregnancy, myself, but it was thirteen years from the time the patient went into labor. Old "Quit" Houston who used to keep the Post Office up in Davidson and practiced a little medicine on the side, attended the woman in labor. She quit labor and he went home. That is where he got his name. He left. She didn't report back any more. Thirteen years later she was brought to Charlotte because she had a sinus under the umbilicus which constantly drained. There was a large and undistinguished mass in the abdomen. We went in and found a little stone idol of a baby, left there after an extra-uterine pregnancy.

Dr. Leslie Lee (Kinston): I have also had a case of full term ectopic pregnancy.

There is very little to discuss in connection with it. Of course, the etiology is something we do not know. It is extruded directly in the abdominal cavity. Why it gets there we do not know. The peculiar thing about the case that I recall is that the woman had labor pains. I thought she was in labor. I watched her for about twelve hours, and the cervix didn't dilate. I decided it wasn't going to dilate, and started to perform a section. When I opened the abdomen, the live fetus was in the abdominal cavity. The attachments were similar to those in Dr. White's case. However, the baby lived only thirty-six hours.

Sterilization of Surgical Instruments by Di-Ethylene Glycol.—Sterilization of surgical instruments by boiling water involves disadvantages: the boiling point of water is relatively low; mineral deposits or stains may occur, especially if the water is hard; and there is a tendency for boiling water to dull the edges of cutting tools. Di-ethylene glycol is relatively free from these objections. While it may fume on heating, this is negligible when small sterilizers are used. If an electric sterilizer is set at "low", the temperature of the liquid rises to about 150 C. As its boiling point of 250 C. is approached, it fumes more markedly, but adequate sterilization should be obtained at temperatures where fuming is not apparent. On standing it evaporates very slowly so that only small amounts at infrequent intervals need be added to the sterilizer to keep it full. Di-ethylene glycol leaves neither stains nor deposits on the instruments. It has no appreciable dulling effect on cutting edges. Since it is completely soluble in water, di-ethylene glycol residues may be promptly removed by dipping the heat-treated instruments in sterile water before use. Finally di-ethylene glycol is relatively inexpensive and readily available from chemical supply houses. These observations are based on two years' exhaustive trial with the compound in comparison with many others recommended for sterilization of dental instruments.—Charles Gurchot and Newton D. Mellars, in Science, 92:516 (November 29) 1940.

Birth Control Poll in Connecticut.—During August the Connecticut Committee To Make Birth Control Legal issued a statement that a personal poll completed by volunteer interviewers showed 93 per cent of the citizens of this State favored giving doctors the legal right to furnish birth control information. Under the direction of a board of directors of 22 members and executive committee of 14 members the committee is now engaged in organizing local groups throughout the State to conduct a widespread education program, looking toward a revision of the present law.—Connecticut State Medical Journal, 4:594 (October) 1940.

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FEBRUARY, 1941

DR. TOM LONG

It is hard to believe that Tom Long is dead, even after reading and re-reading the Associated Press dispatch in the daily papers for February 4, saying that "Dr. T. W. M. Long of Roanoke Rapids, state senator and author of a large portion of North Carolina's 'Good Health' legislation, died unexpectedly here last night of a heart attack." He was so bouyantly alive, enjoyed living so much, and brought so much cheer into the lives of all who knew him well, that even after reading the newspaper story of his sudden death, one feels that he must wake to find it all a dream.

It is fortunate that we, with our limited knowledge, do not have to explain why a life so useful, so full of achievements, and so rich in promise of further performance had to be ended so abruptly. His friends know, however, that Tom Long's end came as he would have planned it, at the close of a full day's work, and while he was still in the full vigor of manhood.

It is needless to tell North Carolina doctors what Tom Long has meant to the medical profession of the state. Those who have served with him on the Board of Examiners, on the Board of Directors of the North Carolina Sanatorium or of the State Hospital, or on the Executive Committee of the State Society know how unsparingly he gave himself to meeting every obligation placed upon him. To him public office was literally a public trust. His long and faithful service in the upper house of the state legislature was largely responsible for much, if not most of the progressive health legislation enacted during the past decade. His personality so impressed itself upon his colleagues that in announcing his death to the senate, Lieutenant Governor Harris said that "Without reflection on any member of the senate, Dr. Tom—as he was affectionately known—was the best loved member of this body."

Those who had frequent occasion to talk to Tom Long over the long distance telephone will recall his habit of closing the conversation with the phrase: "Good-bye, good luck, and God bless you." Let us hope that his spirit knows that his numerous friends are wanting to send this same message to him—Good-bye, old friend; good luck, and God bless you!

* * * *

WELCOME TO DR. TINSLEY HARRISON

It is good news to the friends of the Bowman Gray School of Medicine of Wake Forest College that Dr. Tinsley Harrison has been selected as its Professor of Medicine. At present he is Associate Professor of Medicine at Vanderbilt University. Dr. Harrison was brought up in a medical atmosphere, as his father and grandfather were both doctors. Born in Alabama, he got his academic degree from the University of Michigan and his medical diploma from Johns Hopkins. After serving his hospital apprenticeship in Boston and at Hopkins, he became the first medical resident at Vanderbilt, and was steadily promoted to his present position. Although comparatively young, he has already established a wide reputation as a forceful and inspiring teacher and as a brilliant research worker. He

will give his whole time to teaching and research.

On January 14, Dr. Harrison spoke to the students of the Duke Medical School on "Hypertension", and the next night he addressed the members of the Forsyth County Medical Society on "Pain in the Chest". On both occasions he made a most favorable impression. Dr. Harrison is not only a distinguished medical teacher; he is a cultured Southern gentleman of the highest type. On behalf of the Medical Society of the State of North Carolina, the NORTH CAROLINA MEDICAL JOURNAL extends a hearty and cordial welcome to Dr. Tinsley Harrison and his family.

* * * *

THE DRAFT BOARD EXAMINERS

True to tradition, the medical profession of the United States has offered its services to forward the defense program. An important and fundamental contribution is that of examining the draftees preliminary to selecting those to be sent to the induction camps. The doctors in civil practice who act as examiners for the draft boards are giving their time and professional skill to the government, without receiving a penny in return.

It would seem that common decency would require a certain amount of appreciation from the military representatives of the government; but thus far most of the public comment offered has been abusive criticism because the draft board examiners have not been perfect in their work. If this criticism had been made to the examiners themselves, it would have been accepted as constructive, and the doctors would have tried to profit. From the headquarters of the Selective Service in North Carolina a letter was sent to every draft board examiner, commenting favorably on the work done thus far, and tactfully pointing out ways of improving the examinations made in the future. It was the kind of letter calculated to make its recipient do his very best.

In contrast to this, however, is the attitude of other army officials. For example, a United Press dispatch from Memphis appeared in the *Twin City Sentinel* of January 24, under the flaming headline, "Much Delay Attributed to Examiners", which said in part:

"Two high ranking U. S. Army officers said today that the national defense program was being burdened with expensive and unnecessary delay because draft board examiners are not following army physical standards in classing men for service.

"Major General Frederick H. Smith, commanding officer of the seventh field corps with headquarters in Birmingham, and Lieutenant General Ben Lear, commander of the Second U. S. Army, agreed that some individuals were undergoing unnecessary hardships in that they were being sent back home from army camps because of physical defects that should have been noticed by local board examiners.

"'I understand this is taking place all over the country,' Lear said. 'It is resulting in a great, needless cost to the government.'"

The same paper, in reporting the recent American Legion meeting held in Winston-Salem, quoted Bruce Stubblefield, secretary of the American Legion's national rehabilitation committee, as protesting against the "inadequacy" of the army examinations. "Stubblefield declared that the average examinations given prospective army enrollees last only an average of about four minutes."

No one will doubt for a moment that some of the examinations have been done too hastily, and no one will contend that the draft board examiners are perfect. Let it be remembered, however, that they are giving their services to the government, while their critics are paid by the same government. Virtually every man who makes these examinations does so at the expense of his private practice. Instead of four minutes, the average examination will require much nearer forty minutes. The great majority of the examiners are honest, conscientious, able men, who do their very best. Surely they should not be publicly censured because they are not able within a few weeks to see the draftees from the military rather than from the civil viewpoint.

Much is said of the great expense incurred by the government in caring for soldiers who are found physically or mentally unfit after induction into the army. A simple and practical means of eliminating much of this expense would be to require the prospective soldier to serve a probationary period of three weeks to six months before he is actually accepted.

BROMIDE POISONING

At frequent intervals the Dios Chemical Company, of St. Louis, sends booklets to the physicians of the state advertising in a very insidious way the use of bromides in the form of their "patent" medicine, "Neurosine". They give the formula of their preparation, which obviously has nothing to recommend it over the plain sodium or potassium bromide of the pharmacopeia, dispensed in a vehicle such as syrup of sarsaparilla compound.

Their advertising matter, moreover, contains erroneous and misleading statements designed to convince the practitioner that bromide intoxication is both uncommon and relatively harmless. One reads that "mental symptoms due to bromides are uncommon"; that "bromides are of low toxicity"; and that "bromides do not cause mental deterioration". In other words, bromides are "safe". Every physician knows that one dose of bromide does not kill, and he knows also that when used properly the bromides do not seriously intoxicate; but what a great many physicians do not know is that the continued use of bromides does lead to serious intoxication and that death has been caused in rare instances.

Bromide intoxication has been studied carefully by Hanes and Yates, at Duke Hospital[1]. They find that mild, yet disabling degrees of bromide poisoning are common, constituting by far the most frequent intoxication seen in a large medical clinic. From a study of 400 instances of bromide intoxication they conclude: (a) that bromide intoxication, more or less severe, is a widespread and prevalent condition; (b) that severe bromide poisoning produces marked mental changes. Approximately 5 per cent of admissions to mental hospitals are the result of bromide poisoning. These conclusions are not unexpected when one realizes that headache remedies such as bromo-seltzer, "BC" and capudine contain very considerable amounts of bromide. Doctors, also, who give their patients prescriptions for bromide without explaining the dangers of its continued use are guilty of producing many instances of bromide poisoning.

Finally, a word as to the proper use of bromide. It is not a good sedative, except in such a condition as epilepsy; for bromide must be given for two days before its effects become manifest. The barbiturates are far superior, and every physician should know the properties of the various barbiturates in order that he may select the one needed to solve the problem presented.

1. Hanes, Frederic M., and Yates, Anne: An Analysis of 400 Instances of Chronic Bromide Intoxication, South. M. J. 31:667, 1938.

* * * *

A GULLIBLE SENATOR

According to the United Press, "The late blind senator from Minnesota, Thomas Schall, wanted so much to see that he paid the 'I Am' cult $1,000 for a miracle." His widow testified, in the trial of ten members of this cult charged with defrauding their victims of $3,000,000 through the mails, that her husband was promised a restoration of his sight. In order to bring this miracle to pass, the head of the cult said that "he must visualize a ray of light from the mighty I Am presence, passing through the head, moving out at right angles, passing through his eyes." Apparently this ray of light acted only through the medium of United States Treasury notes, and the inference is rather plain that the larger the denomination of the notes, the more effective they were in attracting the ray of light from the mighty I Am presence.

This story would be ludicrous if it were not tragic. It is hard to believe that a man with enough intelligence to acquire a seat in the United States Senate could so easily be duped by such an old racket. Albert Edward Wiggam gives as one of the marks of the educated man that he can not be sold magic. Judging from the gullibility of Senator Schall and of many other men with academic degrees, some of our educational institutions have failed sadly in their duty to many of their matriculates.

It does not make the average citizen feel any more comfortable to think that such a man could have an important part in shaping the destiny of our country. Let us hope that the average citizen will remember this insight into the scientific judgment of the politician, when the next bill is introduced in Congress to put medical practice in the hands of the politicians.

CASE REPORTS

CLINICO-PATHOLOGICAL CONFERENCE

City Memorial Hospital
Winston-Salem

Presentation of Case

Mr. T. R. H., a 30 year old white male, entered the hospital November 21, 1940, complaining of tenderness and swelling of the right testicle.

He was first seen at a hospital in the central part of the state in October of 1938, at which time a retrograde pyelogram of the right kidney showed the pelvis markedly deformed with dilatation and ulceration. By intravenous urogram the left kidney showed good excretion and distinct clear cupping of the calices, but no evidence of ulceration or tuberculous lesion; so a retrograde pyelogram was not done on this side for fear of carrying infection to the pelvis. Genital examination at this time showed no involvement suggesting tuberculosis. X-rays of the heart and lungs were normal. A diagnosis of tuberculosis of the right kidney was made and the right kidney was removed. He was discharged two and one-half weeks after operation with the wound entirely healed. He was next admitted to a hospital in the eastern part of the state in June of 1940, at which time his left testicle was removed for tuberculosis. Since then he has had a draining sinus in the left side of the scrotum and in the left inguinal region. He was next seen by his private physician because of swelling and tenderness of the right testicle which had been present several weeks. He stated that the swelling had reached the size of an egg and that the tenderness had diminished somewhat. In the skin of the scrotum there was a small nodule which measured 2 cm. x 1 cm. in diameter. The private physician found tubercle bacilli in the urine in considerable numbers, and sent the patient to the hospital with the diagnosis of tuberculous infection of the genito-urinary tract and tuberculosis of the bladder, hoping to get him in condition to do an epididimectomy.

By occupation the patient was a foreman of construction work. He was not married, and claimed to have been in good health. His family history was negative.

Physical examination revealed a well developed and well nourished male who did not appear acutely ill. His temperature was 100 F. His pulse was 80 and his respirations were 18. His lungs were clear and resonant. His breath sounds were normal and no rales were present. The blood pressure was 174 systolic, 110 diastolic. There were no masses, tenderness or rigidity present in the abdomen. Examination of the genitalia showed absence of the left testicle, with draining sinuses in the left inguinal region and on the left side of the scrotum. The right epididymis was swollen, tender and hard, and there was a nodule present in the skin at the base of the scrotum which was hard and slightly tender.

Laboratory work on admission showed 4,000,000 red cells, 15 grams of hemoglobin, and 6,000 white cells, with 75 per cent polymorphonuclears and 25 per cent lymphocytes. The urine was acid, with a specific gravity of 1.010, albumin (1 plus), and pus (4 plus); there were 50-75 red blood cells per high power field, and tubercle bacilli were present.

A flat film of the urinary tract on November 23 showed normal kidney and psoas outlines on the left. No stones were observed. An intravenous pyelogram showed practically no function. The film taken at the end of thirty minutes showed a small quantity of the opaque medium in the bladder, indicating that some function was present, but it was so slight that the pelvis and calices of the kidney were not outlined. On November 28 a cystoscopic examination was attempted under spinal anesthesia because of marked irritability of the bladder. Several strictures of the urethra were encountered which had to be dilated with No. 24 and No. 26 French sounds. These were thought to be tuberculous. The bladder neck was contracted and appeared to be definitely tuberculous, as did the rest of the bladder. The right ureteral orifice was atrophied and scarred. The left orifice appeared to be infected, and did not admit even a filiform bougie. A catheter was inserted 4 cm. into the left ureter, and a pyelogram was attempted by gravity. The x-ray showed a large area of opaque medium, somewhat fusiform in shape, extending as far as the upper border of the sacrum. There was apparently complete obstruction above this. The fusiform shadow was thought to be either extravasation or a saccular dilatation

of the lower ureter. On December 5 cystoscopy was again performed, and the bladder mucosa appeared improved. A No. 4 bougie was passed up the left ureter to the kidney pelvis, but nothing larger could be introduced. On December 11 cystoscopic examination was done for the third time, and the bougie only passed 7 to 8 cm. up the ureter. As a result of these examinations it was believed that the left kidney was tuberculous, and was not draining properly. A nephrostomy was done on December 14. During the operation the patient went into shock, but recovered under stimulants. The patient appeared to do fairly well following the operation and drained considerable amounts of fairly clear urine which contained large numbers of tubercle bacilli. Ten days after the operation he developed a swelling in the left side of the neck under the angle of the jaw which was thought at first to be a cervical lymph node. It was extremely painful and tender and rapidly increased in size. By the fourth day it was recognized to be in the parotid gland. He was given one treatment of x-ray over this region. It became fluctuant and was opened, and serous fluid was obtained. The drain was removed from the nephrostomy wound on the tenth post-operative day, because of the small amount of drainage. The swelling of the parotid gland was not associated with any elevation of temperature. The patient ran an irregular low-grade fever during his stay in the hospital. He expired about five days after the parotid gland began to enlarge.

Clinical Discussion

DR. V. M. LONG: It is obvious that we are dealing with a case of tuberculosis of the genito-urinary tract; therefore the question of a differential diagnosis should not enter seriously into the discussion. There are some features of this case that could be discussed.

First, this patient had his right kidney removed at another hospital. At this time a retrograde pyelogram was made of the kidney, a lesion was found which was diagnosed as tuberculous, and the right kidney was removed. The left kidney was examined by an intravenous pyelogram and was thought to be normal. An early lesion might not have shown up in an intravenous pyelogram, and it may have been a bilateral infection at that time. I feel that bilateral retrograde pyelograms should be made, whether nephrectomy is contemplated or not. There are differences of opinion, however.

Second, in 1940 his left testicle and epididymis were removed and diagnosed as tuberculous. This showed that there was an infection of the prostate gland and seminal vesicles. Tuberculosis of the testicle is, in most, or practically all cases, secondary to involvement of the epididymis; therefore, if the case is seen early epididimectomy should suffice.

Third, in the early diagnosis of tuberculosis of the genito-urinary tract, or of the urinary tract alone, one's suspicion should be aroused when the urinalysis shows acid urine and pus cells. The urine should be repeatedly examined for tubercle bacilli in specimens taken at different times of the day, or in a twenty-four hour specimen. If the urinalyses are persistently negative, guinea pig inoculation or culture should be done. Should this also prove negative, then bilateral retrograde pyelography should be done if ureteral catheterization is possible; otherwise, intravenous pyelograms should be done.

Further comment seems superfluous, as I am quite certain that we are dealing with an advanced case of tuberculosis of the genito-urinary tract.

DR. FROST: What about the enlargement of the parotid gland?

DR. LONG: It is possible for the tubercle bacillus to get in the blood and lodge in the cervical glands.

DR. GRIMES: What did you find at the time of nephrostomy?

DR. FRED GARVEY: We found a definitely tuberculous kidney studded with small tuberculous nodules. The ureter was fibrous and the pelvis was thickened and leathery. On opening the pelvis we found the urine to be a very thin, buttermilk type of fluid under pressure. The interior of the kidney was cavitated, and there was a dilated major calix.

DR. GRIMES: Did the parotid swelling come up quickly?

DR. GARVEY: Yes. The parotid gland started swelling ten days after operation and came up in two or three days. The patient had been eating and apparently getting on all right until he developed this swelling; then he became very sick and toxic.

DR. MCCANTS: The parotid infection was not thought to be tuberculous.

Clinical Diagnosis

Tuberculosis of the kidney with hypertension.

Dr. Long's Diagnosis

Tuberculosis of the genito-urinary tract.

Anatomical Diagnosis

Generalized miliary tuberculosis.

Caseous tuberculosis of seminal vesicles, prostate, right epididymis, left vas, left ureter and left kidney.

Healed tuberculous nodule in apex of right upper lobe.

Obstruction of left ureter by tuberculosis of left vas.

Nephrostomy, left.

Retroperitoneal abscess, left.

Acute pyelonephritis with multiple abscesses of kidney.

Staphylococcus septicemia.

Acute suppurative parotitis.

Tuberculous sinuses in scrotum and left inguinal region.

Surgical absence of right kidney, left testis and epididymis.

Pathological Discussion

DR. FROST: In this case we find that we are unable to put all our eggs in one basket. The general nature of the pathological findings has been indicated in the anatomical diagnosis. The left kidney shows three types of lesions. Beneath the cortex there are old caseous areas surrounded by moderately thick connective tissue capsules showing very little cellular reaction. These are taken to be healed tubercles. The second lesion is numerous miliary tubercles. The third lesion is an acute suppurative pyelonephritis with marked destruction of the pelvis and with the formation of numerous abscesses throughout portions of the kidney.

It is very probable that this patient had bilateral renal tuberculosis at the time that he was first seen. When he was admitted to this hospital I believe that he had active tuberculosis in the remaining epididymis, the prostate, seminal vesicles and bladder. The tuberculosis of the left vas had caused enlargement of the vas, which pressed on and obstructed the left ureter. Occupying roughly the area described as an extravasation of opaque medium during the pyelogram, there was a collection of fluid pus; therefore I believe that this shadow was due to extravasation of opaque medium, and that this area subsequently became infected. Whether this area of infection or the nephrostomy wound was the original source I cannot tell, but the patient certainly had an acute suppurative process of the kidney in which staphylococci were easily demonstrated, with secondary staphylococcic abscesses in the left parotid gland, thereby demonstrating a staphyloeoccus septicemia. There was also an acute generalized miliary tuberculosis, from which the patient would soon have died had not the septicemia occurred.

CASE REPORT

NORTH CAROLINA BAPTIST HOSPITAL
WINSTON-SALEM

Clinical Discussion

By Dr. C. E. Gryte

A white male, 50 years of age, was admitted to the hospital complaining of shortness of breath.

For the past three years the patient had noted increasing difficulty in carrying out the ordinary activities of life. He had become short of breath, and occasionally had to sit up at night in order to breathe. He had noted intense pounding of the heart against the chest wall.

At about the same time that these symptoms began, a slight cough productive of a "blood stained" sputum was first noted. His symptoms had been progressive, so that in the month previous to admission he had been sitting up in a chair almost continuously.

He was seen by his local physician, who told him that his condition was due to the swelling in the right side of neck which had been present for sixteen years. He was placed on "a brown medicine", taken daily.

On July 18, 1940, he first noted swelling of the right arm and of both ankles, together with increased breathlessness, cough, and painful swelling in the right side of the neck.

During the course of the illness he had lost an undetermined amount of weight. He had always been very nervous. His appetite had been poor in the month before admission.

Family history and past history were noncontributory.

Physical examination revealed a dehydrated, emaciated, middle aged white male

sitting in bed in Fowler's position, in acute respiratory distress. The patient appeared highly nervous, and was over-active in his response to commands. The pulse was 130 on admission; respirations 40. The blood pressure was 115 systolic, 95 diastolic.

Eyes: There was marked exophthalmus. The pupils were round and reacted to light and accommodation. Vision was very poor. Examination with the ophthalmoscope showed that the media were clear, the discs distinct and salmon pink in color. The vessels were normal. *Mouth:* The buccal mucosa was blood-stained; gingivitis was present. The tongue was dark brown and coated. There was no tremor. *Neck:* The right supraclavicular fossa and the side of the neck were swollen and tender. Several lymph nodes, the size of lima beans, were palpable. The trachea was in the midline. No definite thyroid enlargement was noted. *Heart:* The apical impulse in the left midaxillary line was diffuse, and was 13 cm. left of the midsternal line. The right border was 3 cm. to the right of the midsternal line. The cardiac sounds were forceful; there was a sinus tachycardia, the rate 160. There were no valvular murmurs. *Lungs:* Expansion was limited bilaterally. There was diminished resonance in both bases, and to a slight degree in the right apex. Fine moist rales were heard in both bases. *Abdomen:* There was slight distension. The bladder was distended. *Genitalia:* There was slight edema of the penis and scrotum. The prostate was of normal size and consistency: *Extremities:* There was marked pitting edema of the right arm and of the legs up to the middle of the thigh. There was a fine to medium coarse tremor of the outstretched fingers. The reflexes were hyperactive.

Laboratory examination on August 4, 1940, gave the following findings: Red blood cells, 4,350,000, hemoglobin 85 per cent; white blood cells, 14,100, polymorphonuclear cells 90 per cent, lymphocytes 10 per cent. On August 5 the white cell count was 23,400, with polymorphonuclears 92 per cent, lymphocytes 8 per cent. On August 7 the leukocyte count was 16,900, with 86 per cent polymorphonuclears and 14 per cent lymphocytes. The Kahn test was negative.

Examination of the urine showed the specific gravity to be 1.021, with an acid reaction, no sugar, and a 2 plus reaction for albumin. There was a moderate number of hyaline casts, some mucus, and a few white blood cells.

The stool was positive for occult blood. No ova or parasites were found.

Course in Hospital: The temperature varied from 100.6 F to 103.2. After five stormy days the patient expired rather suddenly.

Diagnosis:

1. Exophthalmic goiter with cardiac hypertrophy and decompensation.
2. Malignant changes in a previously toxic goiter.

Autopsy Findings

By Dr. J. C. Reece

Findings at autopsy revealed a fullness over the right cervical and right supraclavicular regions. Dissection into these areas showed a marked lymphadenopathy and cellulitis. Microscopic sections from the lymph nodes revealed the process to be an extensive lymphadenitis.

Each pleural cavity contained about 750 cc. of straw colored fluid, and many pleural adhesions were encountered. The lungs showed a marked degree of congestion, and several areas of consolidation were found. Microscopic sections from the consolidated areas showed a resolving pneumonia and infarction with necrosis of the lung substances.

The pericardial sac contained 250 cc. of fluid, and a few milk patches were observed on the epicardial surfaces. The heart weighed 485 Gm. Within the left ventricle, three large friable mural thrombi were found. On section their central portion was found to be composed of purulent material. Microscopically these lesions revealed an acute inflammatory exudate, and necrotic material.

The thyroid was quite nodular and enlarged. Sections revealed a diffuse toxic goiter and areas of malignancy.

The peritoneal cavity contained about 500 cc. of straw colored fluid. The liver and spleen were enlarged, showing a moderate degree of chronic passive congestion.

The kidneys showed a moderate degree of scarring upon the cortical surface, and on section a few dark areas of softening were found. Microscopic sections revealed these to be areas of infarction with necrosis of kidney substance. A chronic glomerular nephritis was also revealed by microscopic sections.

Pathological Diagnosis

1. Diffuse toxic goiter.
2. Malignancy of thyroid.
3. Cardiac hypertrophy.
4. Mural endocarditis.
5. Chronic passive congestion.
6. Resolving pneumonia.
7. Pulmonary infarction.
8. Chronic glomerular nephritis.
9. Renal infarction.

BULLETIN BOARD

PRESIDENT'S MESSAGE

Opportunities in Medicine

Hubert B. Haywood, M. D.

Many careful and critical studies are being made in the field of medical economics by both lay and medical agencies. These are of vital interest to the medical profession. In the *Journal of the American Medical Association* for December 21 there appeared two articles which I would like to call to your attention. One was by Dr. Wilburt C. Davison of Duke University on "Opportunities in Medicine", and the other was by the United States Public Health Service. I shall quote some abstracts from these articles.

Dr. Davison tells us that today the opportunities in medicine are greater than those in any other profession. An average net income of $3800 is a good reward, and it is proportionately higher for those showing greater qualifications. An improved quality of medical service by better qualified physicians is demanded by a more health conscious public. There has been a decreasing ratio of physicians to population. This proportion was 1 to 742 in 1940. The ratio of physicians to population is 69 per cent lower in the South than in the North. The South is predominantly a rural area; urban areas draw the most physicians. Medical students have increased in twenty-five years from 14,891 to 21,302, in spite of the reduction of medical schools from 96 to 77. North Carolina has one physician to 1,284 people. New York has one to 544 people. In 1906 51 per cent of young graduates located in towns of less than 5,000. In 1920 only 9 per cent of young physicians located in such places. The factors responsible for this are low financial return, scattered population, and unsatisfactory living conditions. The distribution of physicians and hospitals are mutually dependent. The modern physician will rarely remain to practice in a community without hospitals.

The question of specialty is of interest. Only 25 per cent of recent graduates intend to do general practice. The number of general practitioners has been growing less. Eighty per cent of all disease can be treated successfully by the general practitioner. His volume of work enables him to charge lower fees than the specialist can. A real "bottle neck" is created, with 75 per cent of present graduates planning to be specialists and to treat the 20 per cent of diseases left in their classification. Competition and over crowding in the specialties have resulted in many Southern communities and the general practitioner, with reduced competition, has had a higher reward than the specialist.

An analysis of diseases in the South indicates that a general practitioner's work consists of obstetrics and gynecology 10 per cent, minor surgery 15 per cent, with the remaining 75 per cent divided into sixty-eight common conditions. Ninety per cent of general practice is done outside of the hospital. Approximately 55 per cent is done in the office and 35 per cent in the homes. About 75 per cent of office visits are for minor surgery, respiratory infections, general medical disorders and venereal diseases. Ninety per cent of home visits are for respiratory, general medical, and contagious diseases, obstetrics and minor surgery. Due to the reduced ratio of children to population, to preventive medicine, and to reduction of the child mortality rate, most of a general practitioner's patients are adults. Seventy-five per cent of the deaths among children are preventable. A recent analysis reports that 20 per cent of a general practitioner's income is from obstetrics, 30 per cent from pediatrics and 50 per cent from general medicine. Young graduates do not feel that general practice carries the same dignity as a specialty. A rural practitioner needs more prolonged training than a city practitioner, as he must be better able to meet his problems unaided.

The United States Public Health Service, in a recent survey of 8,758 white families, representing 39,185 individuals in 130 localities in 18 states distributed in all geographic sections, reported that 81 per cent of calls made by physicians were made by general

practitioners. Seventy-two per cent of all calls by any type of attendant were made by general practitioners. Twelve and five tenths per cent of all cases were attended by a specialist. Private group clinics attended 1 per cent of all cases. Three and 3 tenths per cent of all illnesses were attended by non-medical practitioners, including osteopaths, chiropractors, Christian Scientists, and other faith healers, naturopaths, midwives and chiropodists. Patients in the South gave the least patronage to non-medical practitioners; California gave the highest. Minor respiratory disease is still the leading complaint treated by osteopaths, with rheumatic disease being second. The chiropractor reverses this order. Backaches and other ailments occupy third place, while "nerves" receive much more attention by these types of practitioners than by physicians. When it comes to the number of calls, rheumatic diseases lead in the practice of both osteopaths and chiropractors, making up 13.6 per cent to 14.1 per cent of their entire practice, and requiring only 3.2 per cent of the care given by the medical practitioner.

One may conclude from these facts that the status of the general practitioner should be given more prestige in the eyes of the young physician, and of the public. The general practitioner will continue to do the bulk of the work, and by the excellence of his performance he can bring additional professional standing to his work and make it a specialty in itself. More careful attention by the specialist to the diseases which fall into the hands of the non-medical group will bring them back to medical care. The young graduate who desires to specialize should analyze his own qualities, his training, and the opportunities in the community in which he desires to locate before making his final and lasting decision.

The Meaning of Profession. — Feeling for the sufferings of other human beings—compassion, the good-will which rejoices because other men have been given the opportunity to realize their highest sense of the worth and the dignity and the potential decency of men, that which makes us speak of the value of the individual man—these are the basis of the entire theory of our profession. It is because we have beliefs that we are a profession. For I take it that profession means belief—belief that a form of life can be devised as the result of which there is rendered to other men, service.—Alfred E. Cohn: Remarks on Professions in Medicine, Science, 92:66 (July 26) 1940.

A MESSAGE TO THE DOCTORS FROM THE WOMAN'S AUXILIARY

Dear Doctor:

Please read this, and take the JOURNAL home to your wife.

Why does your wife not belong to the Medical Auxiliary of your county, or to the Auxiliary to the Medical Society of the State of North Carolina? She is entitled to membership.

Article III from the By-Laws of the Auxiliary to the Medical Society of the State of North Carolina reads: "Membership in the Auxiliary shall be composed of the wives and widows of members of the State Medical Society."

What do you suppose would happen should each present member of the State Medical Auxiliary urge a friend, entitled to membership, to come to the State meeting in May at Pinehurst and become a member? The more the merrier!

Dr. Roy W. Fouts of Omaha, Nebraska, vice-speaker of the House of Delegates of the American Medical Association, in his article "The Doctors' Auxiliary", gives us as doctors' wives a challenge: "We, as helpmates to the Men of Medicine. American Mothers! Wives of American Doctors! We challenge you! In you, we recognize the sanctuaries wherein repose the future Medical Profession. Into your outstretched arms has been, and will be, placed many of the future citizens of our country. Your thoughts and ideals will be reflected in the lives of your sons."

Dr. Fouts in his article urges our thorough reading and application of the lay magazine which our State Auxiliary highly endorses: "*Hygeia*, the lay magazine which is one of the greatest advocates of Preventive Medicine. Read it! Recommend it! Apply its teachings and principles until they become an integral part of your lives and the lives of your families. See that it is in the office and home of every physician, and in every public school library in your state. By so doing, you will make an immeasurable contribution to the cause of modern medicine and the solution of many of its perplexing problems."

And in behalf of Mrs. Karl Pace of Greenville, our State *Hygeia* chairman, I suggest that the county auxiliaries ask her about ways for making money. In the past the *Hygeia* commission has helped in building

up our McCain Bed endowment fund. There is a 50 per cent commission for each *Hygeia* subscription sent in through the local auxiliaries. Send your subscription in today and help make your county report better than ever.

Doctor, your wife through her membership in the Auxiliary to the Medical Society of the State of North Carolina pays $1.00 annual dues. One half of this goes to the projects we support: (1) The upkeep of the McCain Bed at Sanatorium; (2) the upkeep of the Martin L. Stevens Bed at Western Sanatorium; and (3) the Student Loan Fund, which has been permanently adopted as one of our projects.

Will your County Medical Society cooperate with the State Auxiliary and sponsor the organization of an Auxiliary in the county in which you practice? Mrs. Clyde R. Hedrick, State Auxiliary President, Lenoir, or Mrs. C. F. Strosnider, First Vice-President and Chairman of Organization, will gladly give their assistance.

Yours very truly,

(Signed) MRS. ALFRED A. KENT, JR.
Press and Publicity Chairman.

NEW MEMBERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

During January nine new members joined the State Society. They are:

Dr. James Watson, Raleigh, N. C.

Dr. Alexander Webb, Raleigh, N. C.

Dr. W. H. Roper, Sanatorium, N. C.

Dr. William Schulze, Duke Hospital, Durham, N. C.

Dr. E. E. Menefee, Jr., Duke Hospital, Durham, N. C.

Dr. Macdonald Dick, Duke Hospital, Durham, N. C.

Dr. H. J. Fox, Duke Hospital, Durham, N. C.

Dr. Susan Coons Dees, Duke Hospital, Durham, N. C.

Dr. R. B. Lawson, Chapel Hill, N. C.

NEWS NOTES FROM DUKE UNIVERSITY

At the beginning of the winter quarter, there were 239 medical students—66 first year, 65 second year, 65 juniors, and 43 seniors. 140 pupil nurses were enrolled.

Dr. Laurence H. Snyder, Professor of Medical Genetics at Ohio State University School of Medicine, is giving a series of weekly lectures on Medical Genetics in January, February, and March.

At the meeting of the Duke Medical Society on January 14, Dr. Tinsley R. Harrison, newly appointed Professor of Medicine at the Bowman Gray Medical School of Wake Forest College, spoke on "Hypertension." Dr. Wingate Johnson, Professor of Clinical Medicine at the Bowman Gray Medical School of Wake Forest College, discussed the paper.

NEWS NOTES FROM THE UNIVERSITY OF NORTH CAROLINA

Dr. Russell L. Holman, Associate Professor of Pathology in the Medical School, has received a substantial research grant from the John and Mary R. Markle Foundation to aid in his studies on the role of hypersensitivity, diet and heavy metal injury in the production of arterial lesions.

Dr. Harold W. Brown, Professor of Public Health, and Dr. Sterling Brackett, Instructor in the School of Public Health, attended the Sixteenth Annual Meeting of the American Society of Parasitologists in Philadelphia on December 30 and 31, 1940, and January 1, 1941. Dr. Brown presented a paper on "The Occurrence of Dioctophyme renale in North Carolina", and Dr. Brackett presented a paper entitled "Six New Species of Avian Schistosomes from Wisconsin and Michigan with a Description of the Life Cycle of One of Them, Gigantobilharzia gyrauli (Brackett)".

Dr. H. G. Baity, Professor of Sanitary Engineering, and Professor H. B. Gotaas of the School of Public Health, attended the meetings of the American Society of Civil Engineers in New York in January.

Dr. William Fleming, Dr. J. J. Wright, Dr. Harold W. Brown, Dr. J. C. Andrews, Dr. Robert B. Lawson, Dr. D. F. Milam, and Dr. A. W. Makepeace attended the second Conference of the General Nutrition Committee of North Carolina, which was held in Raleigh on January 10, 1941, at the State Laboratory of Hygiene.

NEWS NOTES FROM THE STATE BOARD OF HEALTH

The second annual conference of the North Carolina General Nutrition Committee, held in the auditorium of the State Laboratory of Hygiene, was described by Dr. Carl V. Reynolds, State Health Officer, who presided, as "a grand demonstration of the desire and willingness of cooperating agencies to study the nutritional needs of the people and then to apply that knowledge."

Dr. Wilder, of the National Research Council, announced that there will shortly appear on the market flour designed to conform to the nutritional standards set by the Council. This flour, he said, will be fortified with thiamin and nicotinic acid necessary for building up the system and combatting pellagra. Formerly, "in grandfather's day," he said, flour retained 85 per cent of its nutritive value, which gradually has been cut down, in order to meet the demand for "white flour." In other words, he pointed out, flour was de-vitaminized, but the necessary elements are to be restored by manufacturers.

* * *

Mr. John D. Faulkner, engineer of the Typhus Control Unit of the Board of Health's Division of Epidemiology, in a radio address, "Rats and Their Relation to Disease", said: "The majority of cases of endemic typhus fever occur in the southern states, chiefly, in Georgia, Alabama, Texas, Florida, South Carolina, and North Carolina. In the past ten years over 13,000 cases have been reported to the State Board of Health during this period, with the majority of cases occurring in the past four years. It is believed that many more cases, than are reported, actually occur. The disease is quite prevalent throughout the State and has been reported from 63 of our 100 counties.

"Endemic typhus is most prevalent during the late summer and fall months, and the majority of cases occur among people who work in food handling establishments, feed stores, mills or other rat in-

fested buildings. In one community, in North Carolina, there occurred this year over 25 cases among the employees of one establishment.

"At the present time there is no effective vaccine, such as we have for typhoid fever and diphtheria, which will protect us against endemic typhus fever, nor is there any specific treatment for the disease. Therefore, the only effective way of preventing this disease, is by means of strict rat control measures. Unless we begin to apply such measures immediately, endemic typhus fever will continue to increase, and soon will become a major health hazard."

* * *

North Carolina continues to lead the nation in the number of diphtheria cases reported. In the statement for the week ending December 21, furnished health officers by the United States Public Health Service, Dr. Reynolds pointed out, North Carolina was accredited with 28 cases of diphtheria.

"New York, with its 13,379,142, according to the final figures of the 1940 census, reported only 20 cases. . .

"However, there is a brighter side to the picture, when we consider that, during the corresponding week of 1939, we reported 48 cases."

The Thermal Belt Medical Society

The Thermal Belt Medical Society met at the Isothermal Hotel in Rutherfordton on January 23 at 7:00 p.m. After dinner, the following program was presented:

"Occipito-Posterior"—Dr. W. T. Head.
"The Role of the Physician in the Treatment of Pyorrhea Alveolaris"—Dr. J. E. Derby.
"Thyroidectomy"—Dr. Paul McBee.
"Edema—Cardiac and Renal"—Motion Picture.

Buncombe County Medical Society

At the first monthly meeting of the Buncombe County Medical Society, held on January 6, Dr. Arthur C. Ambler delivered his Presidential Address. Following the address, motion pictures on "Allergic Diseases" and "Pneumonia" from the Lederle Film Library were shown. On January 20 a meeting was held to discuss the Asheville Medical Library.

Officers of the society for 1941 are: Arthur C. Ambler, president; Julian A. Moore, vice president; Eugene M. Carr, secretary; and G. Westbrook Murphy, president-elect.

Forsyth County Medical Society

On January 15 the Forsyth County Medical Society, meeting at the Robert E. Lee Hotel in Winston-Salem, heard Dr. Tinsley R. Harrison, recently appointed Professor of Medicine in the Bowman Gray School of Medicine of Wake Forest College, speak on "Pain in the Chest".

Guilford County Medical Society

The Guilford County Medical Society met in Greensboro on January 2 at 6:30 p.m. at the King Cotton Hotel. The guest speaker was Dr. Arthur M. Shipley, Head of the Department of Surgery of the University of Maryland, who spoke on "Traumatic Surgery".

Mecklenburg County Medical Society

At the first monthly meeting of the Mecklenburg County Medical Society, held on January 7, Dr. Andrew B. Taylor spoke on the "Early Diagnosis and Management of Peripheral Vascular Diseases". Following this talk a movie demonstration of the modern management of pneumonia was given, through the courtesy of the Lederle Film Library. At the second January meeting, held on January 21, three papers were given. Dr. A. M. McDonald spoke on "The Use of Testosterone in Dysfunction of Male Genital Organs"; Dr. Raymond Thompson spoke on the "Present Status of Prostatic Surgery"; and Dr. Aubrey Hawes gave a paper on the "Present Day Concept in the Study of Male Sterility".

Post Graduate Surgical Assembly

The Post Graduate Surgical Assembly of the Southeastern Surgical Congress will be held in Richmond March 10, 11, and 12, 1941. Among the speakers will be Dr. Parker C. Hardin of Monroe, N. C., and Dr. Byrd C. Willis of Rocky Mount, N. C. Information may be obtained from Dr. B. T. Beasley, 701 Hurt Building, Atlanta, Ga.

Regional Meeting of American Academy of Pediatrics

Region Two of the American Academy of Pediatrics will meet in Richmond, Virginia, on April 24 and 25. All physicians who are interested in pediatrics are cordially invited to attend this meeting.

South Atlantic Association of Obstetricians and Gynecologists

The South Atlantic Association of Obstetricians and Gynecologists met on February 7 and 8 at the George Washington Hotel in Jacksonville. Among the papers read was one on "Supravaginal and Complete Hysterectomy. A Ten Year Survey", by Dr. Richard L. Pearse of Durham. The following North Carolina physicians discussed papers which were read: R. J. Ruark, Raleigh; Ernest Franklin, Charlotte; W. L. Thomas, Durham; John Burwell, Greensboro; B. C. Nalle, Charlotte; W. Z. Bradford, Charlotte; and E. C. Hamblen, Durham. Dr. Robert A. Ross of Durham is secretary-treasurer of the Association, and Dr. I. M. Procter of Raleigh is a member of the Executive Committee.

Neuropsychiatric Society of Virginia

The winter meeting of the Neuropsychiatric Society of Virginia was held at the Academy of Medicine Auditorium, Richmond, Virginia, at 2 p. m. Wednesday, January 29, 1941.

The following program was presented:

1. "Yeast Infection of the Nervous System"—By Dr. Asa Shield, Richmond, Va.
2. "Mental Deterioration in the Psychoses"—By Dr. Ernest H. Alderman, Richmond, Va.
3. "The Problem of the Psychopathic Personality in the Feebleminded Institution"—By Dr. G. B. Arnold, Colony, Va.
4. "Suicidal Attempts as Seen in a General Hospital"—By Dr. Patrick H. Drewry, Jr., Richmond, Va.

At the business meeting the following officers for the next year were elected:

President, Dr. W. Gayle Crutchfield, Richmond.
Vice President, Dr. Howard R. Masters, Richmond.
Secretary-Treasurer, Dr. Edward H. Williams, Richmond.

Examinations For Appointments in the Medical Corps of the U. S. Navy

The Surgeon General of the Navy, Rear Admiral Ross T. McIntire, (MC), U. S. N., announces the next examination for appointments as commissioned officers in the Medical Department of the Navy will be held at all of the larger naval hospitals and at the Naval Medical Center, Washington, D. C., on May 12 to 15, inclusive, 1941. Applicants for appointment as Assistant Surgeon, effective approximately two months from date of examinations, may now request authorization to appear for examination. Requests for such authorization should reach the Bureau of Medicine and Surgery prior to April 21, 1941.

Applicants for appointment as Assistant Surgeon are required to be citizens of the United States between the ages of 21 and 31, graduates of Class "A" medical schools, to have had at least one year of intern training in a hospital accredited for intern training by the Council on Medical Education and Hospitals of the American Medical Association, and to meet the physical and other requirements for appointment.

The Medical Corps of the Navy is being increased in strength proportionate to the expanding Navy and U. S. Marine Corps. Service for medical officers is active professionally and attractive in assignments at sea, on shore duty, and on foreign shore stations. In the normal rotation of assignments every practicable consideration is given the officer's preference for the type of duty he desires. The Naval Medical School at the Naval Medical Center, Washington, D. C., offers a course of post-graduate instruction and instruction in those branches of medicine which apply particularly to naval service. Under normal conditions newly appointed officers are assigned to this course upon their entry into the service or during their first few years of naval service.

Naval medical officers are encouraged to develop a specialty after they have completed their first cruise at sea. Shortly before completion of his sea duty, the Navy doctor may request special training in the Medical Department specialty in which he is interested. Such requests are acted upon by a special board in the Bureau of Medicine and Surgery and, if approved, the Navy doctor is sent to a hospital for training and experience in that specialty for one year. Upon completion of this training, he is assigned to post-graduate instruction at one of the many medical centers in the United States for a period up to one year after which, in so far as is practicable, he is retained in that type of duty. Some of the specialties in which qualifications may be obtained are: Surgery; Medicine; Otolaryngology; X-ray; Laboratory; Pathology; Public Health: Psychiatry; Deep-Sea Diving; Aviation Medicine (Flight Surgery); Gas Warfare, and Tropical Medicine. Several officers have been trained in research particularly applying to problems arising in submarine and aviation activities.

The naval service affords excellent opportunities for professional advancement. Medical officers receive the same pay and allowances as other officers of the Navy in corresponding ranks and the equivalent amount of service.

A circular of information for applicants for appointment as medical officers of the Navy, containing full information regarding physical requirements, professional examinations, rates of pay, and promotion and retirement data may be obtained by addressing the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Examinations American Board of Obstetrics and Gynecology

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted at Cleveland, Ohio, by the entire Board from Wednesday, May 28, to Monday, June 2, 1941, inclusive, prior to the opening of the annual meeting of the American Medical Association in Cleveland, Ohio.

Application for admission to Group A, Part II, examinations must be on file in the Secretary's Office not later than March 1, 1941.

Formal notice of the time and place of these examinations will be sent each candidate several weeks in advance of the examination dates.

Candidates for reexamination in Part II must make written application to the Secretary's Office before April 15, 1941.

The Board requests that all prospective candidates who plan to submit applications in the near future request and use the new application form which has this year been inaugurated by the Board. The Secretary will be glad to furnish these forms upon request, together with information regarding Board requirements. Address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania.

Thirteenth Anniversary Number of the Harofe Haivri

"The Hebrew Medical Journal"

The attention of the medical profession is directed to the appearance of a special issue of **Harofe Haivri** (The Hebrew Medical Journal). a semi-annual publication, edited by Dr. Moses Einhorn. This volume commemorates the thirteenth anniversary of this journal and is dedicated to Prof. Sigmund Freud.

The contents of this Journal are not confined to technical medical topics, but are divided into several sections covering a variety of related subjects, such as Medicine in the Bible and Talmud, Old Hebrew Medical Manuscripts, Palestine and Health, etc. Among the contributors to the medical and editorial sections, have been such prominent physicians as I. S. Wechsler, A. Rongy. S. Solis-Cohen, B. Crohn, R. L. Kahn, J. Bullowa, D. Macht. etc.

For further information. communicate with the editorial office of the **Harofe Haivri**, 983 Park Avenue, New York City.

News Notes

Two North Carolina physicians were guest speakers at the Twenty-First New Year Meeting and Banquet of the Marlboro County Medical Society, held in Bennettsville, S. C., on January 9. Dr. Brodie C. Nalle of Charlotte spoke on "Prolonged Labor Due to Uterine Dystocia", and Dr. J. Buren Sidbury of Wilmington gave a paper on "Treatment of Diarrhea and Dehydration", illustrated with motion pictures.

* * *

Dr. Aubrey Hawes of Charlotte gave a paper on "Recurrent Urolithiasis" at the Anderson (S. C.) County Medical Society meeting on December 11.

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Dr. Hunter Sweaney of Durham was married to Miss Frances Foushee on December 31.

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Dr. MacLean Bacon Leath, Jr., of High Point. was married to Miss Lillian Agnew of Burkeville, Va.

* * *

Dr. Monroe Gilmour has opened offices at 117 West Seventh Street, Charlotte, for the practice of Internal Medicine.

WOMAN'S AUXILIARY

GREETING TO THE AUXILIARY MEMBERS FROM YOUR PRESIDENT

Let us resolve to renew our interest in Auxiliary work for 1941. Our first effort should be to collect the dues of all members and to secure as many new members as possible. To the District Councillors I would like for each one to resolve to organize one county not now organized. May we have all our dues in Mrs. E. C. Judd's hands as soon as possible, and by all means not later than March 15, 1941.

The State Medical Society is encouraging us to organize all counties having no auxiliaries, and it is my hope to add some new ones this year. It is your duty as a doctor's wife to organize a county auxiliary if you do not have one at present in your county. However, the gain in individual memberships rests mostly upon present membership.

Do you know any doctor's wife that has not joined your Auxiliary?

Have you asked her to attend a meeting as your guest?

Do you make a special effort to be friendly to the visiting doctor's wife?

Do you inform your membership chairman of newcomers to your county, so she may call on them and ask them to join?

The increase of the membership of your Auxiliary depends not only on your chairman, but is the responsibility of every one of you; and if you, as an individual, exert yourself, there is no reason why North Carolina should not have a substantial increase this year.

THE BULLETIN

Sending in your subscription to the *Bulletin* of the Woman's Auxiliary to the American Medical Association should be a "must" on your list of "things to do today". Beautifully edited by Mrs. George H. Ewell of Madison, Wisconsin, it is published four times during the year. You will begin with the Fall, 1940, issue to get news and plans of the Auxiliary from "border to border and coast to coast." *Don't miss it!*

Mrs. H. E. Cristenberry, our *Bulletin* chairman, is very anxious that North Carolina meet its quota in subscriptions to the *Bulletin*. Let us in North Carolina become informed of the work and objectives of the Auxiliary through the *Bulletin*. The quota for North Carolina has been set for 71, and at present only 4 subscriptions have been received. Please send your $1.00 to Mrs. Ben Kendall, Shelby, and become acquainted with the work that is being done by our National President.

Mrs. McNeill of North Wilkesboro, Chairman of the McCain and Stevens Beds, has just informed the President that both beds are now occupied. The McCain Bed is occupied by Maria Goodwin, student nurse, and the first occupant of the Stevens Bed is Dr. W. G. Byerly, County Health Officer of Caldwell County.

Convention chatter has begun. This year the Woman's Auxiliary to the American Medical Association will hold its annual session June 2-6 in Cleveland, Ohio.

In Memoriam

RICHARD HARRISON SPEIGHT, M. D.

By J. K. Hall, M.D.

Richmond, Virginia

All of us knew Dr. Richard H. Speight, and some of us had known him intimately for a number of years. Although we knew that his health had not been robust for several months we were shocked by the announcement of his death on the evening of July 31, 1940. He had been for a few days a patient in the Clinic with which he was associated, and his life ceased suddenly as he was making ready to return to his home.

Richard Harrison Speight bore in full the name of his father, who was also a physician. Dr. Speight, the elder, was an upright and forceful citizen. He cultivated a large plantation; he ministered skillfully and unselfishly to the sick in an extensive community; and he reared and educated a large family of children and set them a high example in citizenship. The maiden name of his wife was Maggie Powell. Her father was one of the most substantial citizens of an older day of Edgecombe County. Dr. Speight's paternal grandfather was a Methodist minister, the founder of Speight's Chapel, near the ancestral home. Dr. Speight lies side by side with his father and his mother, his paternal grandfather, and several of his brothers in the Chapel's burying ground. It is fitting that they should lie in sleep eternal near the Chapel that had been established by the grandfather and amongst the people whom they had loved and to many of whom they had ministered.

Dr. Richard H. Speight, the younger, looked first upon his father as the minister to the health of his neighbors. He heard first of his grandfather as the pastor of the community. Thought of others and devotion to others was in the air first breathed by him. His father provided not only for his own large household, but also for the many who cultivated his plantation; and he was considerate of the poor and the needy around him. The spirit of the very best that had been in the old ante-bellum life continued to exist and to sweeten life at the old country home in the boyhood days of our friend.

He spent his childhood and his boyhood in a community that still held to the best the old South had cherished—simplicity, honesty, unselfishness, industry, frugality, with keen consciousness of duty to family, to neighbors, to state. to self and to God.

Dr. Speight was prepared by ancestry—he was the descendant of two of the oldest and the best families in the state's history—by family life, by wholesome rearing and by parental example for the practice of medicine. His father and his father's father were each ministers—one to souls, the other to bodies.

Dr. Speight was educated at Oak Ridge Military School, at the University of North Carolina, and at the University of Maryland. From the School of Medicine of the University of Maryland he obtained his medical degree while he was still almost a boy, in 1901. He had been born in Edgecombe in 1879.

By the time he was 23 years of age he was busily engaged in assisting his father in a varied practice spread over a large area in Edgecombe County. After a year or so of such experience Dr. Speight responded to the call of Dr. Isaac M. Taylor to help him in the management of Broadoaks Sanatorium, a private hospital at Morganton, the first one in the state for the treatment of the mentally and the nervously sick. Dr. Speight's temperament and his skill fitted him so well for such difficult work that he was soon called to the medical staff of the great State Hospital at Morganton. We are obliged to believe that that institution never had on its medical staff a physician who more naturally and easily and sympathetically lent himself to ministering to the patients, to the employes, and to many others in the community. In Morganton, both in the State Hospital and in the town, Dr. Speight was much beloved.

But he longed always for life in his old homeland—for the wide rich fields, for the abundant harvests, and for the prosperous and wholesome and happy rural life. He came again to his native Edgecombe and there he labored until he was called into rest eternal. He practiced at the old home, but most of his remaining years were spent professionally in Rocky Mount. Yet he always had a large country practice, both because he loved the country and because the country people loved him. He practiced sometimes alone and sometimes with others. He was one of the founders of Park View Hospital. He had been associated with his brother, the late Dr. J. P. Speight, and also with another brother, Dr. J. Ambler Speight.

In 1917 Dr. Speight was married to Miss Lucile Pruden Jones. The widow and two children, a daughter and a son, survive him. The son, who bears his father's name, is a medical student. Two brothers and two sisters, one of whom is a graduate nurse, also survive him.

Except for a lack of robust health during the past few years, Dr. Richard H. Speight was generously endowed with all those attributes and qualities that have made the family doctor a citizen so useful and so beloved. He was by nature highly intelligent; he was tactful, genial. but dignified and sufficiently aloof; in his days of good health he was unacquainted with fatigue and was untiring in his ministrations. He had an intuitive knowledge of human nature and he possessed keen diagnostic judgment. His patients developed lasting devotion to him and he gave them ever the best that was in him. When Dr. Speight was in sound health, with no cause for concern about himself, no physician ever ministered more joyously nor more acceptably to his people. He was a splendid physician, an upright citizen. a devoted husband and an indulgent father. The medical profession and the civic life of the community have suffered a grievous loss in his death.

BOOK REVIEWS

The Pharmacological Basis of Therapeutics. By Louis Goodman and Alfred Gilman. Price, $12.50. Pp. 1325. New York, The Macmillan Company, 1941.

Now and then, though not very often, a book is published which is so brimful of excellence that one wants to stop his own work and spread the good news to all who will listen. It is in this enthusiastic spirit that the present brief review of **The Pharmacological Basis of Therapeutics** is written. Materia medica, formerly crammed like dry bran down the poor student's throat, has been deleted in large part from the curriculum, and in its place the pharmacist familiarizes the student with all he needs to know about pharmaceutics. Pharmacology is sometimes well taught, more often not; but in either case it is rare to have pharmacology and clinical therapeutics taught simultaneously — a form of teaching which common sense tells us is highly desirable and. indeed, necessary if the student is to become a decent therapeutist.

It is this ideal method which Goodman and Gilman adopt, and one has only to read a few chapters to find himself in the midst of highly instructive and thoroughly entertaining surroundings. Let the reader turn to the chapter on "Barbiturates", for example, or to the pages devoted to the sulfonamide drugs, and he will, I think, join the host of admirers which this profound and perspicuous treatise is sure to create. The book will be a boon to the medical student. but it should find its greatest usefulness in the hands of the practicing physician, whom it will guide with clearness and certainty in the intelligent use of drugs. It is as necessary for the practitioner as a stethoscope. and it should find a place in the library of every therapeutist.

Immunity. Principles and Application in Medicine and Public Health. Fifth Edition of **Resistance to Infectious Diseases.** By Hans Zinsser, M.D.; John F. Enders, Ph.D.; and LeRoy D. Fothergill, M.D. Price, $6.50. New York: The Macmillan Company, 1939.

The principle purpose of this present volume is to meet the need for increased correlation between the principles revealed in the laboratory and their applications to the problems of the clinic and of public health. Immunology is no longer regarded by the medical profession as a highly specialized branch of biology with which the practitioner has little concern. The physician of the present day insists on understanding the principles of the procedures which are developed by the specialists and uses critical judgment in the valuation of such methods in his own work. The book is divided into two sections, the first covering principles and theory, and the second on the application of immunological knowledge to medicine and public health. In this section, immunologic methods for diagnosis, specific therapy and the production of immunity for a large number of infectious diseases are presented in great detail. The volume contains the answers to a large number of questions frequently asked by the general practitioner and should be in the hands of both laboratory workers and practitioners. The book is well written and the section on applied immunology is unusually practical.

A Surgeon's Life. By John M. T. Finney, M.D. Cloth. Price, $3.50. Pp. 396. New York. G. P. Putnam's Sons, 1940.

Dr. John M. T. Finney has entitled his autobiography "A Surgeon's Life", and he might well have added, "Or the Family Doctor Becomes a Surgeon"; for despite the surgical specialization, his simple, kindly nature and his love of personal service to his patients mark him indelibly as the family doctor. Through the pages of his book shines forth the stature of a real man, careless of money, contemptuous of sham and pretense, incapable of that strutting arrogance which lesser men so easily develop, and above all, an honest, humble, hardworking doctor. His life story is a plain, unvarnished tale, and one may say without intended derogation that the man is far greater than his book.

Not that the book lacks merit, for its simple, direct style is often strangely moving and, although it is essentially a happy, sunny story, the reader will now and then surreptitiously wipe away a tear. Dr. Finney is as Southern as corn pone and hot biscuits, and like most Southerners of the better class, he is genuinely fond of the negro and sympathetic with his problems—not in the soppy, sentimental fashion so often affected by those who know nothing of "negroes", but in the nostalgic way of the Southerner who was nursed by one, played with "niggers" as a child, ate their cooking with the relish due the best cooking in the world, and who respects them for what they really are. Dr. Finney speaks correctly and with understanding the language of the untutored Southern darky, and his book contains many good negro stories.

As a surgeon, Dr. Finney defines himself quite objectively and honestly. His accomplishments have been in the field of the practical, for he never cared for research or the laboratory. He belongs to the group of sturdy surgical pioneers who have so broadened the scope of surgery and so improved its practical technique that today no nook or cranny of the body may be called inaccessible. He is no Harvey Cushing, nor has he ever desired to be; when offered Halsted's chair of surgery, he assessed his attainments with stark honesty and refused it.

There is a certain type of man to whom one turns instinctively when a public service is demanded. Dr. Finney has served on so many committees and boards of trustees that he could not possibly remember them all. In his modest way he names many of these, but there were surely more. His life has been spent among men who were either great or who thought they were, but he never lost the common touch for a single instant. Some of these contacts make most interesting reading—as, for example, his experiences when General Pershing sent him from his headquarters in France to carry a message directly to President Wilson; he delivered the message and it produced the desired result. He went to France a major and returned a Brigadier General. Writing from France in 1918 he said: "I can conceive of no greater calamity that could befall the world than the triumph of the German arms, and the forcing upon it of the standards of morality and justice of their ruling classes." If this could be said of the Germany of 1918, what can one say today when Hitler and his willing slaves have left their slimy traces upon the whole of Europe!

Although the book is replete with doctors' talk and anecdotes that will delight the reader, whether medical or lay, to many the personal recollections of his famous colleagues will make the strongest appeal. Welch, Osler, Halsted, Kelly, Thayer, Futcher, Boggs — what memories these names awaken in one who knew them as teachers, and hence as friends! They gave to American Medicine that priceless something known as the "Hopkins Spirit". It would be quite wrong to insinuate that flashes of this same spirit had not appeared before in Philadelphia, in Boston, in New York and elsewhere, but it came to its full flower in Baltimore. There is no need to define it; one who has been exposed to it needs no definition, and one who has not might consider such an attempt presumptuous if not offensive. We may all be proud that today no one school or group can be singled out as peculiarly possessing this spirit. It has so diffused itself that it has become the spirit of American Medicine. Dr. Finney dwells with loving memory upon these lost colleagues whose lives he sketches with that clearness and perspicuity which Macaulay said was the true eloquence of science. He and Kelly are the last leaves on the bough. We put down his book with the renewed conviction that he represents in its truest sense the Good Physician.

How Jesus Heals Our Minds Today. By David Seabury. Pp. 317. Price $2.50. Boston: Little, Brown and Company. 1940.

This is one of the most intriguing and stimulating books that have appeared recently. Its author, a distinguished psychologist, shows by numerous direct quotations how the teachings of Jesus anticipated those of modern psychology—and how modern psychology derives its fundamental conceptions from Christ. Perhaps an extreme fundamentalist might find fault with some of Dr. Seabury's conclusions, but this reviewer is ready to accept most of his reasoning. In a few instances he comes dangerously close to faith healing. Here his views are identical with those expressed by Alexis Carrell in **Man, the Unknown.** Seabury quotes freely from Carrell and was evidently much influenced by his views. With this exception, the book can be commended to all physicians and intelligent laymen interested in the healing of the mind.

A few quotations will illustrate the character of the book. "From experience in psychological work, if I were asked what one factor causes most of our suffering, I would certainly say the delusion of duty. Nothing else causes so much neurosis, insanity and disease . . . . Around us people are rushing about, pushing, crowding, sweating in the name of duty."

"Every sort of madness has been perpetuated in the name of conscience." "The average conscience is made up of family opinions, neighborhood prejudices, social biases and the superstitions and delusions of a particular time and place."

"Millions of people today, in so-called Christian lands, know little of the teachings of Jesus."

"There is joy in a task well done, security in an ever-maturing mind, confidence in an intellect that thinks with accuracy, strength in a heart full of courage, glory in the adventure of creative living."

"We urge the rediscovery of Jesus as the only enduring cure for our personal dilemmas and our social problems."

Introduction to Medical Biometry and Statistics. By Raymond Pearl, Professor of Biology in the School of Hygiene and Public Health, and in the Medical School, The Johns Hopkins University. Third edition, revised and enlarged. 537 pages. Twenty-eight chapters. Ten appendices. Philadelphia: W. B. Saunders Company, 1940.

This is the third revision of this book. The second revision was in 1930. This book was originally written to be used as an introduction to biometric methods for biologists and medical men, and was not intended to be particularly valuable for specialists in the field. It serves as a grounding in the elementary principles. The present revision follows the original plan. Much new material, many new illustrations and tables have been added, and large portions of the text have been re-written. The chapters on tabular and graphic presentation of statistical data and on obtaining original scientific records will well repay careful reading by the great majority of medical men who have tabular material to present in a paper. A short section on the common failings of medical records is particularly pertinent.

The Need for the General Practitioner.—I am thoroughly convinced that most of the mistakes in diagnosis, and therefore most of the mistakes in therapy are due, not to lack of knowledge, but to failure to listen to the story of the patient, failure to make a simple inclusive physical examination, and failure to think about the data thus acquired. There is a great need for men of broad minds and wide knowledge to whom people may come when first ill, assured of a careful inquiry into their symptoms, and a general evaluation of their physical condition with recommendations for special minute examinations of parts of their bodies when indicated, to the end that no early cancer, no tuberculous focus, or other progressive lesion be overlooked. In other words, there is a great need for the man or woman who in the cities is called an "internist" and in the small communities is called a general practitioner of medicine. This man is the first line of defense against the onslaught of disease and the first line is very often the most important. —Warner S. Bump: Medical Opportunities in a Small Urban Community, Wisconsin Medical Journal, 39:976 (November) 1940.

Health Standards in America. — The health in America has never been better than it has been during the last ten years, in spite of the depression. It is a peculiar thing that when everything else has gone down—finances, the promises of politicians, economic control, and social good will—when everything else has been in a panic and depression for ten years, one thing has been going up—, the health of the American people. Who gets credit for it—, the foreign isms abroad, those along the Atlantic seaboard that would like to implant still more foreign isms in this country, or the rank and file of the family doctors directly on the firing line with their patients? It has been that sacred relationship of doctor and patient that has elevated the health standards of this particular country, and we are giving at the same time due credit to the municipal and state health departments, as well as the United States Public Health Service.—Eben J. Carey: The Doctor and Democracy, Wisconsin Medical Journal, 39:918 (November) 1940.

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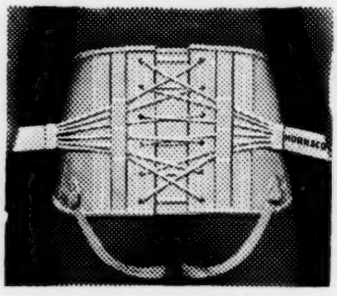

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